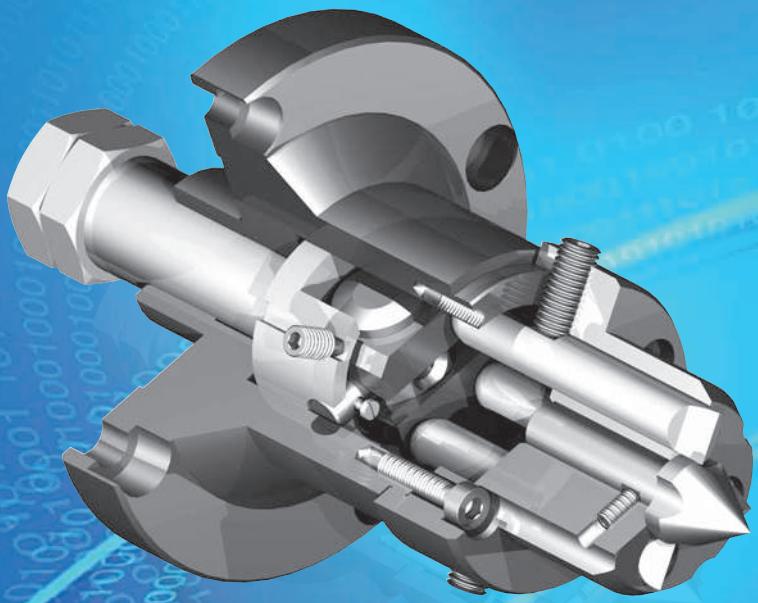
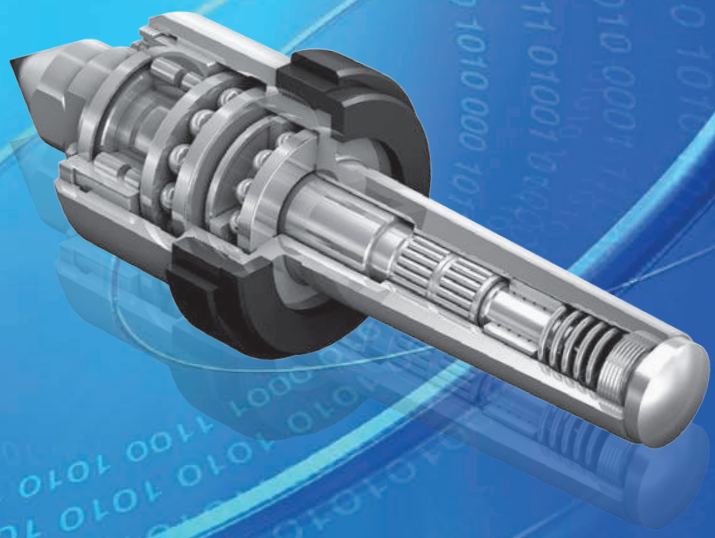
GENERAL CATALOGUE





Face drivers
Trascinatori Frontali

Precision live centers
Contropunte

2015

TECNOLOGIE FRB

TECNOLOGIE FRB *design, manufacture and market many different patented product lines that are truly innovative and incorporate advanced technology turning, gear cutting and grinding concepts.*

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TECNOLOGIE FRB *are going to continue to be at the forefront despite the ever increasing pace of tecnologycal change.*

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Costantemente impegnata nella ricerca tecnologica e nel miglioramento delle prestazioni dei propri prodotti, dalla sua fondazione nei primi anni 60, ha riscosso la fiducia di numerose ditte di primaria importanza nazionale e internazionale, che utilizzano abitualmente i suoi prodotti. Inoltre collabora attivamente con gli uffici tecnici dei più importanti costruttori di macchine utensili italiani ed esteri.

Gli appuntamenti con le novità tecnologiche (sempre più frequenti) dei prossimi anni, troveranno la **TECNOLOGIE FRB** compartecipe attiva e all'avanguardia.

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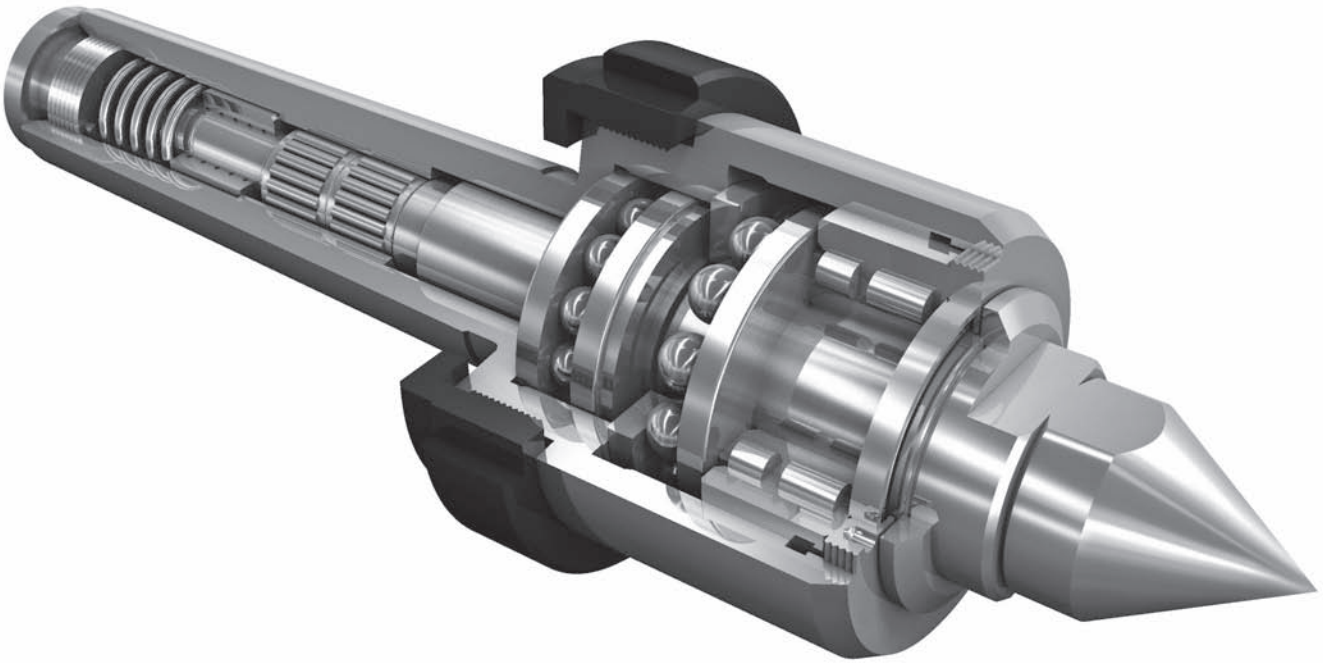
PATENTED LIVE CENTERS
CONTROPUNTE BREVETTATE



LIVE CENTERS WITH AXIAL LOAD DISTRIBUTION
CONTROPUNTE A CARICO ASSIALE DIFFERENZIATO

LIVE CENTERS WITH AXIAL LOAD DISTRIBUTION "80" AND "85" SERIES: THE BEST FOR MACHINING WITH THE FACE DRIVER THE ONLY MECHANISM OF ITS KIND IN THE WORLD

CONTROPUNTE ROTANTI A CARICO ASSIALE DIFFERENZIATO SERIE 80 E 85 IDEALI PER LAVORAZIONI CON TRASCINATORE UN MECCANISMO UNICO AL MONDO

PATENTED
BREVETTATO

TECHNICAL SPECIFICATIONS

The FRB live center with axial load distribution has two thurst bearings ⑯ and ⑰ between which a specially designed belleville spring washer ⑤ is inserted to distribute the load between the two bearings. When a thrust acts on the center ② it will retract up to 0.25 mm (inch. 0.0098) which corresponds to 500 Kg (1102.3 lb) of axial load for the FRB live center morse taper 4 that is absorbed by the back bearing ⑰.

As the center shaft ③ has now moved inside by 0.25 mm (inch. 0.0098) it comes to rest on the inner ring of the cylindrical roller bearing ⑭, thereby transmitting the remaining force to the front bearing ⑯. This patented center allows the center to apply a very high rate of live center thrust to the process.

When turning shafts held by face driver, machining can be carried out with an accordingly high feed rate and cutting depth.

The two roller cages ⑱ support heavy radial loads, and a vibrations-damping bush ⑦ kept stiff by a spring ⑧ which prevents vibration. The nut ④ at the front of the live center can be adjusted to eliminate the play caused by worn bearings by means of a caliper wrench.

A chip guard ring ⑩ guarantees complete insulation of the sealing ring ⑫ from chips. The back extraction nut ⑳ prevents deflection and vibration.

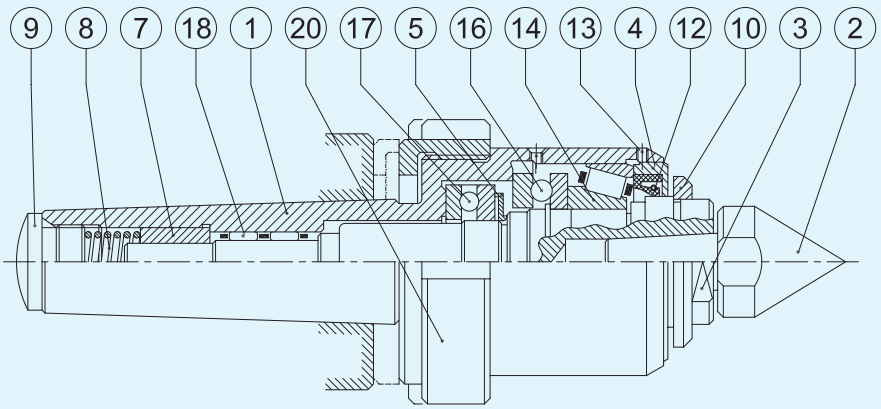
REQUISITI TECNICI

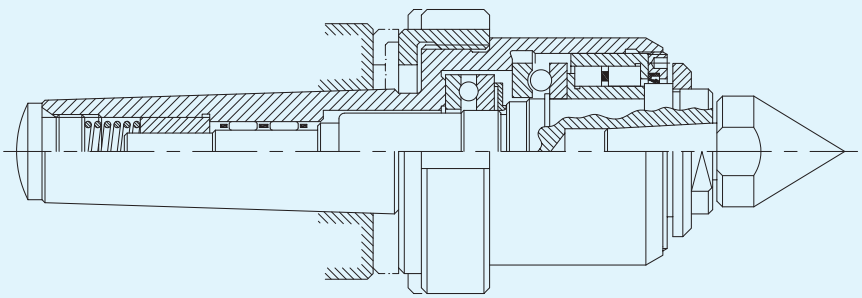
La contropunta FRB a carico assiale differenziato è provvista di due cuscinetti reggispinta ⑯ e ⑰ tra i quali è inserita una molla a tazza speciale ⑤ per differenziare il carico assiale sui due reggispinta. Facendo pressione sulla punta ② questa comincia a rientrare fino ad un massimo di 0.25 mm (corrispondenti per la contropunta FRB cono morse 4 a 500 Kg di carico assiale) che vengono caricati sul reggispinta posteriore ⑰.

Pertanto l'albero ③, essendo già rientrato di 0.25 mm, è andato in battuta sull'anello interno del cuscinetto a rulli conici ⑭ trasmettendo così l'ulteriore carico assiale sul reggispinta anteriore ⑯. Con questo sistema brevettato, la contropunta consente di lavorare con carico assiale molto elevato e, lavorando alberame con trascinatore, è possibile usare un maggior avanzamento e profondità di passata.

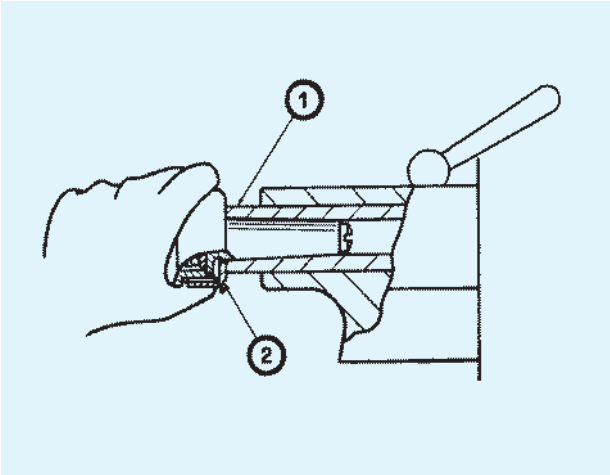
Vi sono inoltre due gabbie a rullini ⑱ per una forte tenuta radiale, una boccola antivibrante portante ⑦ mantenuta rigida mediante una molla ⑧ eliminando in questo modo le vibrazioni. Agendo con una chiave a compasso sulla ghiera ④ posta anteriormente alla contropunta serie 80 si elimina il gioco che si crea con l'usura dei cuscinetti.

Un anello parascorie di protezione ⑩ garantisce un perfetto isolamento dell'anello di tenuta ⑫, dalle scorie stesse. La ghiera di spallamento ed estrazione ⑳ nella parte posteriore, serve ad eliminare flessioni e vibrazioni.





THE SUPPORT AND EXTRACTION NUT / FUNZIONE DELLA GHIERA DI SPALLAMENTO ED ESTRAZIONE

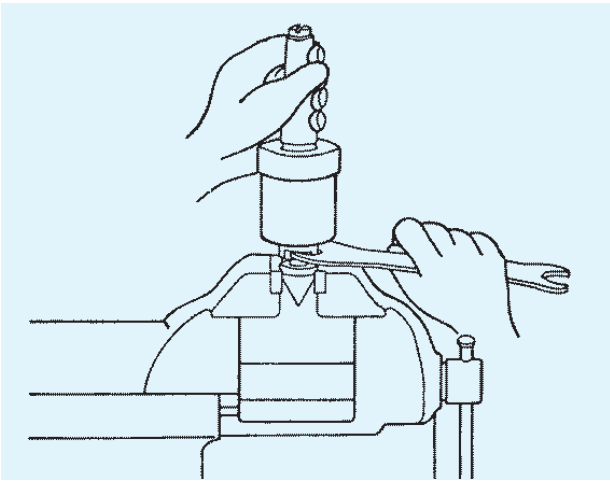


The extraction nut is fitted on the basic body to give the live center maximum stiffness and check deflection or vibrations caused by deformation of the basic body.
To fix, follow this procedure:
(a) fix the live center in the tailstock sleeve;
(b) unscrew the nut until it comes to rest on the live center sleeve;
(c) when it is in position tighten firmly with both hands.
(1) Live center sleeve.
(2) Live center nut in position on the live center sleeve.

La ghiera avvitata sul fusto serve per irrigidire al massimo la contropunta eliminando eventuali flessioni o vibrazioni dovute alla deformazione elastica del fusto della contropunta. Si impiega nel seguente modo:
(a) fissare la contropunta nel toppo mobile;
(b) svitare la ghiera finché non fa battuta nel cannotto porta contropunta;
(c) quando è in battuta stringere forte con le due mani.

(1) Cannotto porta-contropunta
(2) Ghiera della contropunta già in battuta nel cannotto porta contropunta.

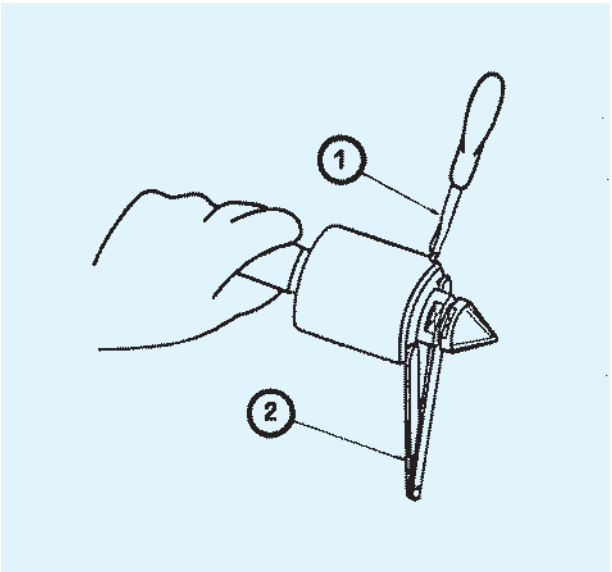
REMOVING THE INTERCHANGEABLE CENTER / MODALITÀ D'ESTRAZIONE DELLA CUSPIDE INTERCAMBIABILE



Fit the spanner around the live center shaft and rotate firmly as when tightening a screw.

Inserire la chiave nell'alberino della contropunta e tirare con forza come se si dovesse stringere una vite.

ADJUSTING THE 80 SERIES LIVE CENTERS / REGISTRAZIONE DELLE CONTROPUNTE SERIE 80



To ensure setting accuracy and avoid vibrations the live centers must occasionally be adjusted using the following procedure: tighten the nut until the cylindrical roller bearing ring is positioned firmly on the tapers.
(1) Loosening the adjusting nut screw.
(2) Use torque wrench for loosening or tightening the live center adjusting nut.
The 85 live centers need no adjusting.

Note: *As this is a live center with axial load distribution when is not against the workpiece (when it is not subjected to axial load) it does not travel smoothly; this is due to the countued pressure of the spring which distributes the axial load between the two thrust bearings.*

Affinchè sia sempre esatta e non dia vibrazioni, occorrerà registrarla di tanto in tanto nel seguente modo: stringere la ghiera fino a consentire all'anello del cuscinetto a rulli conici, di essere sempre aderente ai rulli stessi.
(1) Come allentare la vite ferma-ghiera.
(2) Chiave a compasso per allentare o stringere la ghiera di registrazione della contropunta.
Le contropunte serie 85 non sono da registrare.

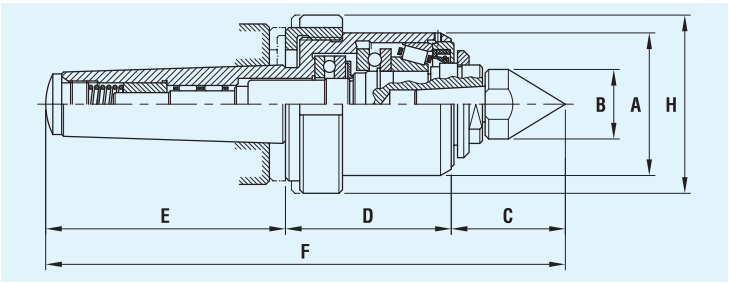
Nota: Essendo la contropunta a carico differenziato, noterete che quando non è contro al pezzo da tornire (cioè quando non è sotto carico assiale) diventa poco scorrevole; questo è dovuto alla contropressione della molla che serve per differenziare il carico assiale sui due reggispinta.

FRB LIVE CENTER WITH AXIAL LOAD DISTRIBUTION AND RADIAL TAPER ROLLER BEARING, THE BEST FOR MACHINING WITH THE FACE DRIVER

CONTROPUNTE «FRB» A CARICO ASSIALE DIFFERENZIATO E CUSCINETTO RADIALE A RULLI CONICI PARTICOLARMENTE ADATTE A LAVORAZIONI CON TRASCINATORE

"80 SERIES" - " SERIE 80*"*

LIVE CENTER WITH INTERCHANGEABLE CENTER SUPPORT SHAFT
CONTROPUNTA CON ALBERO PORTA CUSPIDE INTERCAMBIABILE



FEATURES

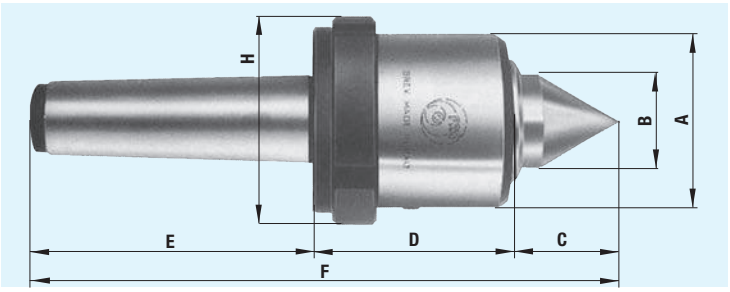
The interchangeable center enables the operator to rapidly fit the center required for the task at hand and to easily replace worn centers without having to change the complete shaft. It is therefore ideal for a working environment in which different types of machining are carried out. Eccentricity tolerance: 0.01.

CARATTERISTICHE

Avendo la cuspide intercambiabile questo modello permette all'operatore di montare con estrema rapidità la cuspide adatta al lavoro che si deve svolgere e di sostituire la punta quando è rovinata con un minimo costo senza dover cambiare l'intero albero; è quindi adatta per chi lavora diverse tipologie di particolari. Eccentricità 0.01.

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)													
		C		*D*		*E*		*A*		*B*		*F*		*H*	
010180121	CM2 / *MT2*	38	(1.496)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	161	(6.339)	58	(2.283)
010180131	CM3 / *MT3*	44	(1.732)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	26	(1.024)	189.5	(7.461)	64	(2.520)
010180141	CM4 / *MT4*	48.5	(1.909)	68	(2.677)	103	(4.055)	62	(2.441)	29	(1.142)	219.5	(8.642)	74	(2.913)
010180151	CM5 / *MT5*	54	(2.126)	82	(3.228)	136	(5.354)	80	(3.150)	34	(1.339)	272	(10.709)	87	(3.425)
010180161	CM6 / *MT6*	65	(2.559)	123	(4.843)	189	(7.441)	119	(4.685)	43	(1.693)	376	(14.803)	130	(5.118)

LIVE CENTER WITH INTEGRAL SHAFT
CONTROPUNTA CON ALBERO INTEGRALE



FEATURES

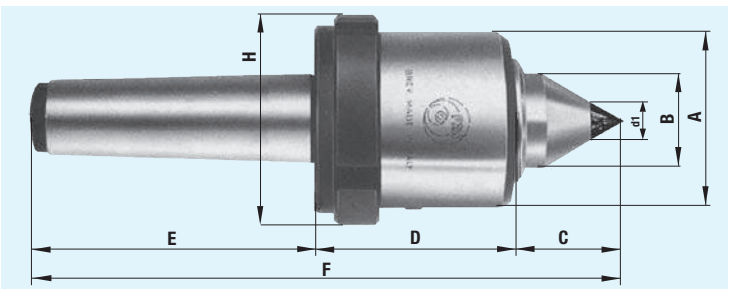
The integral shaft guarantees greater stiffness and ensures extremely small runout error (measured at the tip and on the workpiece). It is therefore suitable for tasks requiring 0.005 eccentricity tolerance and because of the reduced protrusion of the shaft from the body, it is also suitable for machining very heavy workpieces.

CARATTERISTICHE

L'albero integrale garantisce una maggiore rigidità, una maggiore precisione sulla punta e sul pezzo. È quindi adatta a lavorazioni entro 0.005 di eccentricità e, data la sporgenza ridotta dell'albero dal corpo, anche per pezzi particolarmente pesanti.

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)													
		C		*D*		*E*		*A*		*B*		*F*		*H*	
010180123	CM2 / *MT2*	28	(1.102)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	151	(5.945)	58	(2.283)
010180133	CM3 / *MT3*	35.5	(1.398)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29	(1.142)	181	(7.126)	66	(2.598)
010180143	CM4 / *MT4*	40	(1.575)	69	(2.717)	102	(4.016)	61.5	(2.421)	33	(1.299)	211	(8.307)	74	(2.913)
010180153	CM5 / *MT5*	45	(1.772)	82	(3.228)	136	(5.354)	80	(3.150)	36	(1.417)	263	(10.354)	87	(3.425)
010180163	CM6 / *MT6*	67	(2.638)	123	(4.843)	189	(7.441)	119	(4.685)	57.5	(2.264)	378	(14.882)	130	(5.118)

LIVE CENTER WITH INTEGRAL SHAFT AND CARBIDE TIP INSERT
CONTROPUNTA CON ALBERO INTEGRALE E PUNTA DI METALLO DURO RIPORTATO



FEATURES

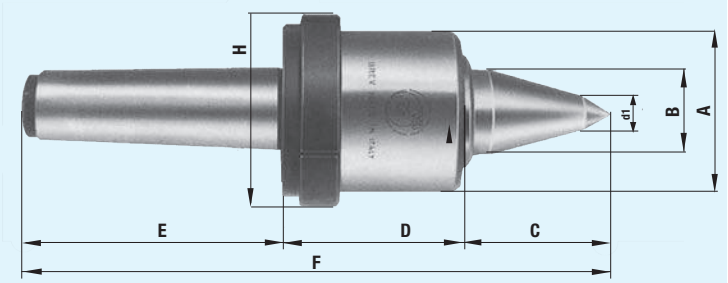
It is also used for turning parts without centers or with rough centers. The integral shaft ensures extremely small runout error (measured at the tip and on the workpiece) and its superior stiffness checks vibration. It is therefore suitable for machining to within eccentricity tolerances of 0.005.

CARATTERISTICHE

Si utilizza anche in casi come la tornitura di particolari senza centri o con centri grezzi. L'albero integrale garantisce una maggiore precisione e rigidità sulla punta e sul pezzo. È quindi adatta a lavorazioni entro 0.005 di eccentricità.

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)															
		C		*D*		*E*		*A*		*B*		*F*		*d1*		*H*	
010180125	CM2 / *MT2*	28	(1.102)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	151	(5.945)	6	(0.236)	58	(2.283)
010180135	CM3 / *MT3*	35.5	(1.398)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29	(1.142)	181	(7.126)	10	(0.394)	66	(2.598)
010180145	CM4 / *MT4*	40	(1.575)	68	(2.677)	103	(4.055)	62	(2.441)	33	(1.299)	211	(8.307)	12	(0.472)	74	(2.913)
010180155	CM5 / *MT5*	45	(1.772)	82	(3.228)	136	(5.354)	80	(3.150)	36	(1.417)	263	(10.354)	18	(0.709)	87	(3.425)
010180165	CM6 / *MT6*	67	(2.638)	123	(4.843)	189	(7.441)	119	(4.685)	57.5	(2.264)	378	(14.882)	20	(0.787)	130	(5.118)

LIVE CENTER WITH EXTENDED INTEGRAL SHAFT
CONTROPUNTA CON ALBERO INTEGRALE PROLUNGATO



FEATURES

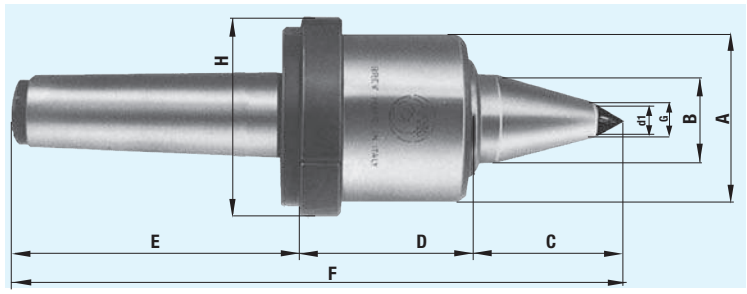
The extended integral shaft ensures extremely small runout error on the workpiece and its slender point makes it ideal for machining thin workpieces, even when close to the live center. This live center is therefore ideal for precision machining of small sized components.

CARATTERISTICHE

L'albero integrale prolungato garantisce anch'esso una maggiore precisione sul pezzo e, data la sua particolare forma, si presta alla lavorazione di particolari di piccolo diametro, anche a ridosso della contropunta. Questa contropunta è quindi adatta a lavorazioni di precisione su piccoli particolari.

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)													
		C		*D*		*E*		*A*		*B*		*F*		*d1*		*H*	
010180124	CM2 / *MT2*	47	(1.850)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	170	(6.693)	8	(0.315)	58	(2.283)
010180134	CM3 / *MT3*	55	(2.165)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29	(1.142)	200.5	(7.894)	12	(0.472)	66	(2.598)
010180144	CM4 / *MT4*	60	(2.362)	68	(2.677)	103	(4.055)	62	(2.441)	33	(1.299)	231	(9.094)	14	(0.551)	74	(2.913)
010180154	CM5 / *MT5*	62	(2.441)	82	(3.228)	136	(5.354)	80	(3.150)	36	(1.417)	280	(11.024)	16	(0.630)	87	(3.425)
010180164	CM6 / *MT6*	90	(3.543)	123	(4.843)	189	(7.441)	119	(4.685)	57.5	(2.264)	401	(15.787)	25	(0.984)	130	(5.118)

LIVE CENTER WITH EXTENDED INTEGRAL SHAFT AND CARBIDE TIP INSERT
CONTROPUNTA CON ALBERO INTEGRALE PROLUNGATO E PUNTA DI METALLO DURO RIPORTATO



FEATURES

It is used in special cases for turning parts without centers or with rough centers. The extended integral shaft ensures extremely small runout error on the workpiece and its slender point makes it ideal for machining thin workpieces, even when close to the live center. This live center is therefore ideal for precision machining of small sized components.

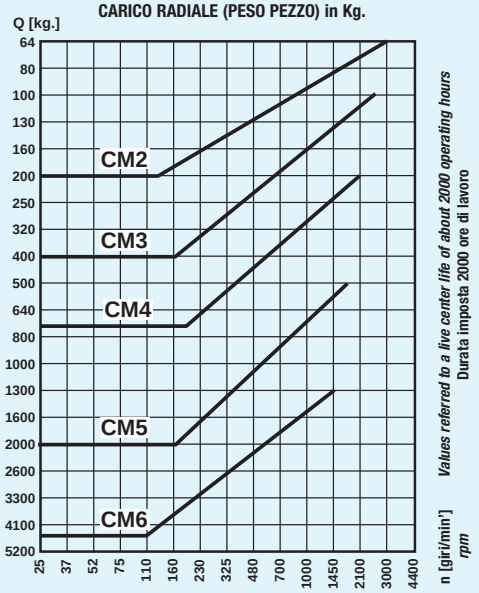
CARATTERISTICHE

Si utilizza anche in casi come la tornitura di particolari senza centri o con centri grezzi. L'albero integrale prolungato garantisce anch'esso una maggiore precisione sul pezzo e, data la sua particolare forma, si presta alla lavorazione di particolari di piccolo diametro, anche a ridosso della contropunta. Questa contropunta è quindi adatta a lavorazioni di precisione su piccoli particolari.

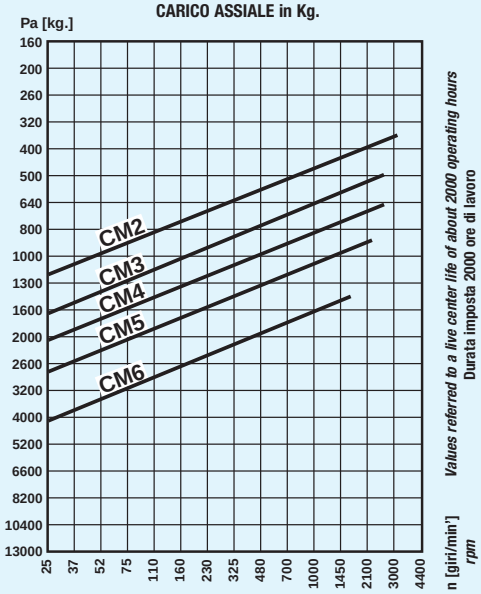
Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)															
		C		*D*		*E*		*A*		*B*		*F*		*G*		*d1*		*H*	
010180126	CM2 / *MT2*	47	(1.850)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	170	(6.693)	8	(0.315)	6	(0.236)	58	(2.283)
010180136	CM3 / *MT3*	55	(2.165)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29	(1.142)	200.5	(7.894)	12	(0.472)	10	(0.394)	66	(2.598)
010180146	CM4 / *MT4*	60	(2.362)	68	(2.677)	103	(4.055)	62	(2.441)	33	(1.299)	231	(9.094)	15	(0.591)	12	(0.472)	74	(2.913)
010180156	CM5 / *MT5*	62	(2.441)	82	(3.228)	136	(5.354)	80	(3.150)	36	(1.417)	280	(11.024)	18	(0.709)	14	(0.551)	87	(3.425)
010180166	CM6 / *MT6*	90	(3.543)	123	(4.843)	189	(7.441)	119	(4.685)	57.5	(2.264)	401	(15.787)	25	(0.984)	20	(0.787)	130	(5.118)

LOAD CHARTS
DIAGRAMMI DI CARICO

RADIAL LOAD (WORKPIECE WEIGHT) in Kg.
CARICO RADIALE (PESO PEZZO) in Kg.



AXIAL LOAD in Kg.
CARICO ASSIALE in Kg.



Notes: *The load values refer to the model with an integral shaft and a live center life of about 2000 operating hours. Tests have shown that the live center can however be used for a longer or shorter period than this, depending on the types of machining task it undertakes. For other types of live center (with interchangeable center and extended integral shaft) the load values indicated on the graphs should be reduced. These are a result of the center interchangeability in the first case and in the second are due to the extension of the integral shaft.*

Example: *Permitted maximum loads*
for the MT4 live center
with integral shaft at n = 1000 r.p.m.
Radial load Q = 320 kg
Axial load Pa = 900 kg

Note: i valori di carico riportati si riferiscono al modello con albero integrale e ad una durata della contropunta di circa 2.000 ore di lavoro. Le prove hanno comunque dimostrato che si possono ottenere durate superiori o inferiori a seconda delle lavorazioni. Per gli altri tipi di contropunte (con cuspide intercambiabile e albero integrale prolungato) è bene ridurre i valori di carico radiale ricavati dal grafico. Tali riduzioni di carico sono dovute nel primo caso all'intercambiabilità della cuspide e nel secondo al prolungamento dell'albero integrale.

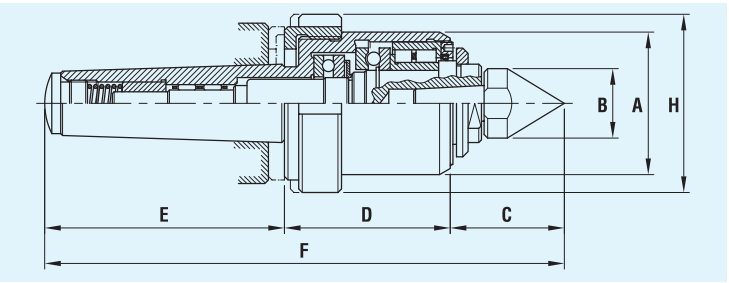
Esempio: Carichi ammissibili
della contropunta CM4
con albero integrale a n = 1000 giri/1'
Carico radiale Q = 320 kg
Carico assiale Pa = 900 kg

FRB LIVE CENTER WITH AXIAL LOAD DISTRIBUTION AND RADIAL CYLINDRICAL ROLLER BEARING. THE BEST FOR MACHINING WITH THE FACE DRIVER

CONTROPUNTE «FRB» A CARICO ASSIALE DIFFERENZIATO E CUSCINETTO RADIALE A RULLI CILINDRICI. PARTICOLARMENTE ADATTE A LAVORAZIONI CON TRASCINATORE

"85 SERIES" - " SERIE 85*"*

LIVE CENTER WITH INTERCHANGEABLE CENTER SUPPORT SHAFT
CONTROPUNTA CON ALBERO PORTA CUSPIDE INTERCAMBIABILE



FEATURES

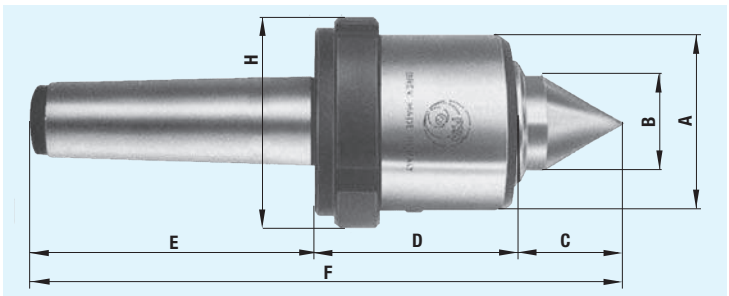
The interchangeable center enables the operator to rapidly fit the center required for the task at hand and to easily replace worn centers without having to change the complete shaft. It is therefore ideal for a working environment in which different types of machining are carried out. Eccentricity tolerance: 0.01.

CARATTERISTICHE

Avendo la cuspide intercambiabile questo modello permette all'operatore di montare con estrema rapidità la cuspide adatta al lavoro che si deve svolgere e di sostituire la punta quando è rovinata con un minimo costo senza dover cambiare l'intero albero; è quindi adatta per chi lavora diverse tipologie di particolari. Eccentricità 0.01.

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)													
		C		*D*		*E*		*A*		*B*		*F*		*H*	
010185121	CM2 / *MT2*	38	(1.496)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	161	(6.339)	58	(2.283)
010185131	CM3 / *MT3*	44	(1.732)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	26	(1.024)	189.5	(7.461)	64	(2.520)
010185141	CM4 / *MT4*	48.5	(1.909)	68	(2.677)	103	(4.055)	62	(2.441)	29	(1.142)	219.5	(8.642)	74	(2.913)
010185151	CM5 / *MT5*	54	(2.126)	82	(3.228)	136	(5.354)	80	(3.150)	34	(1.339)	272	(10.709)	87	(3.425)
010185161	CM6 / *MT6*	65	(2.559)	123	(4.843)	189	(7.441)	119	(4.685)	43	(1.693)	376	(14.803)	130	(5.118)

LIVE CENTER WITH INTEGRAL SHAFT
CONTROPUNTA CON ALBERO INTEGRALE



FEATURES

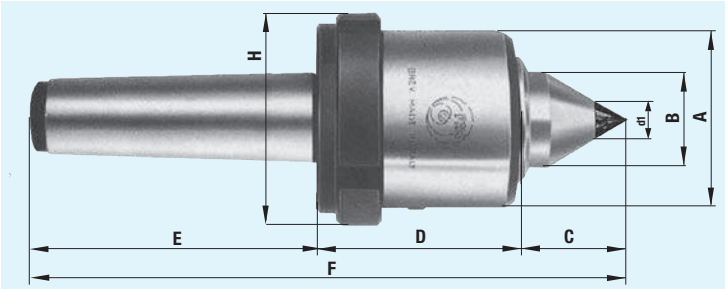
The integral shaft guarantees greater stiffness and ensures extremely small runout error (measured at the tip and on the workpiece). It is therefore suitable for tasks requiring 0.005 eccentricity tolerance and because of the reduced protrusion of the shaft from the body, it is also suitable for machining very heavy workpieces.

CARATTERISTICHE

L'albero integrale garantisce una maggiore rigidità, una maggiore precisione sulla punta e sul pezzo. È quindi adatta a lavorazioni entro 0.005 di eccentricità e, data la sporgenza ridotta dell'albero dal corpo, anche per pezzi particolarmente pesanti.

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)													
		C		*D*		*E*		*A*		*B*		*F*		*H*	
010185123	CM2 / *MT2*	28	(1.102)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	151	(5.945)	58	(2.283)
010185133	CM3 / *MT3*	35.5	(1.398)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29	(1.142)	181	(7.126)	66	(2.598)
010185143	CM4 / *MT4*	40	(1.575)	68	(2.677)	103	(4.055)	62	(2.441)	33	(1.299)	211	(8.307)	74	(2.913)
010185153	CM5 / *MT5*	45	(1.772)	82	(3.228)	136	(5.354)	80	(3.150)	36	(1.417)	263	(10.354)	87	(3.425)
010185163	CM6 / *MT6*	67	(2.638)	123	(4.843)	189	(7.441)	119	(4.685)	57.5	(2.264)	378	(14.882)	130	(5.118)

LIVE CENTER WITH INTEGRAL SHAFT AND CARBIDE TIP INSERT
CONTROPUNTA CON ALBERO INTEGRALE E PUNTA DI METALLO DURO RIPORTATO



FEATURES

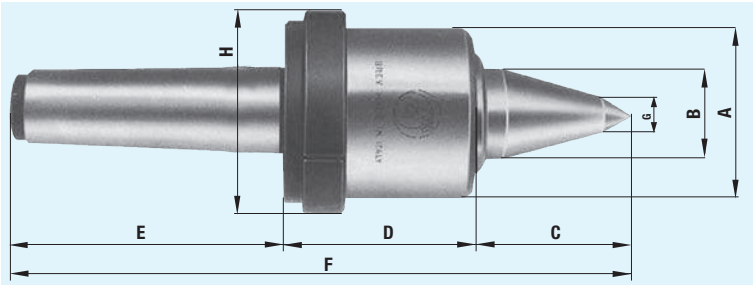
It is also used for turning parts without centers or with rough centers. The integral shaft ensures extremely small runout error (measured at the tip and on the workpiece) and its superior stiffness checks vibration. It is therefore suitable for machining to within eccentricity tolerances of 0.005.

CARATTERISTICHE

Si utilizza anche in casi come la tornitura di particolari senza centri o con centri grezzi. L'albero integrale garantisce una maggiore precisione e rigidità sulla punta e sul pezzo. È quindi adatta a lavorazioni entro 0.005 di eccentricità.

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)															
		C		*D*		*E*		*A*		*B*		*F*		*d1*		*H*	
010185125	CM2 / *MT2*	28	(1.102)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	151	(5.945)	6	(0.236)	58	(2.283)
010185135	CM3 / *MT3*	35.5	(1.398)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29	(1.142)	181	(7.126)	10	(0.394)	66	(2.598)
010185145	CM4 / *MT4*	40	(1.575)	68	(2.677)	103	(4.055)	62	(2.441)	33	(1.299)	211	(8.307)	12	(0.472)	74	(2.913)
010185155	CM5 / *MT5*	45	(1.772)	82	(3.228)	136	(5.354)	80	(3.150)	36	(1.417)	263	(10.354)	20	(0.787)	87	(3.425)
010185165	CM6 / *MT6*	67	(2.638)	123	(4.843)	189	(7.441)	119	(4.685)	57.5	(2.264)	378	(14.882)	20	(0.787)	130	(5.118)

LIVE CENTER WITH EXTENDED INTEGRAL SHAFT
CONTROPUNTA CON ALBERO INTEGRALE PROLUNGATO



FEATURES

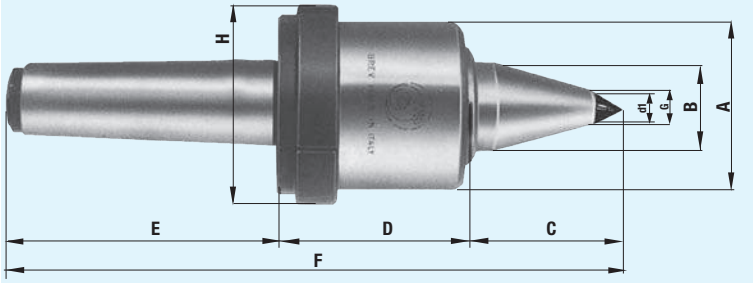
The extended integral shaft ensures extremely small runout error on the workpiece and its slender point makes it ideal for machining thin workpieces, even when close to the live center. This live center is therefore ideal for precision machining of small sized components.

CARATTERISTICHE

L'albero integrale prolungato garantisce anch'esso una maggiore precisione sul pezzo e, data la sua particolare forma, si presta alla lavorazione di particolari di piccolo diametro, anche a ridosso della contropunta. Questa contropunta è quindi adatta a lavorazioni di precisione su piccoli particolari.

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)													
		C		*D*		*E*		*A*		*B*		*F*		*G*		*H*	
010185124	CM2 / *MT2*	47	(1.850)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	170	(6.693)	8	(0.315)	58	(2.283)
010185134	CM3 / *MT3*	55	(2.165)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29	(1.142)	200.5	(7.894)	12	(0.472)	66	(2.598)
010185144	CM4 / *MT4*	60	(2.362)	68	(2.677)	103	(4.055)	62	(2.441)	33	(1.299)	231	(9.094)	14	(0.551)	74	(2.913)
010185154	CM5 / *MT5*	62	(2.441)	82	(3.228)	136	(5.354)	80	(3.150)	36	(1.417)	280	(11.024)	16	(0.630)	87	(3.425)
010185164	CM6 / *MT6*	90	(3.543)	123	(4.843)	189	(7.441)	119	(4.685)	57.5	(2.264)	401	(15.787)	25	(0.984)	130	(5.118)

LIVE CENTER WITH EXTENDED INTEGRAL SHAFT AND CARBIDE TIP INSERT
CONTROPUNTA CON ALBERO INTEGRALE PROLUNGATO E PUNTA DI METALLO DURO RIPORTATO



FEATURES

It is used in special cases for turning parts without centers or with rough centers. The extended integral shaft ensures extremely small runout error on the workpiece and its slender point makes it ideal for machining thin workpieces, even when close to the live center. This live center is therefore ideal for precision machining of small sized components.

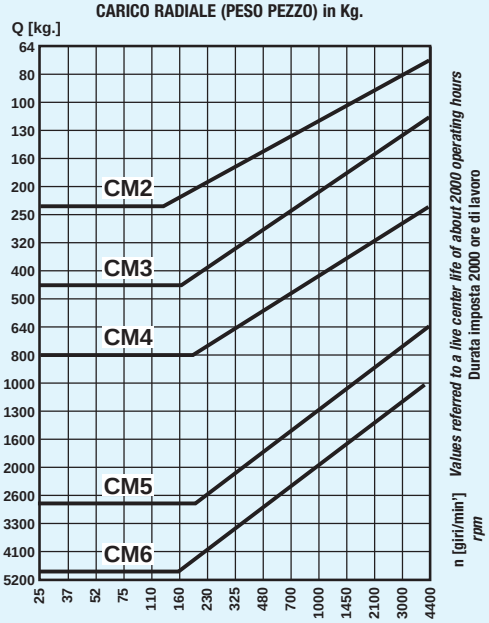
CARATTERISTICHE

Si utilizza anche in casi come la tornitura di particolari senza centri o con centri grezzi. L'albero integrale prolungato garantisce anch'esso una maggiore precisione sul pezzo e, data la sua particolare forma, si presta alla lavorazione di particolari di piccolo diametro, anche a ridosso della contropunta. Questa contropunta è quindi adatta a lavorazioni di precisione su piccoli particolari.

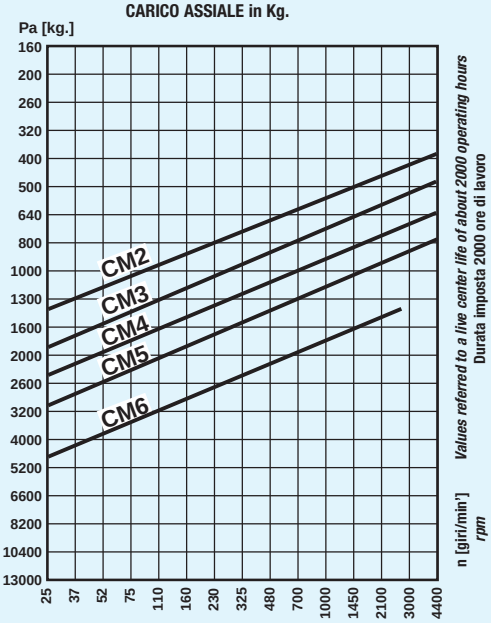
Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)																	
		C		*D*		*E*		*A*		*B*		*F*		*G*		*d1*		*H*	
010185126	CM2 / *MT2*	47	(1.850)	56	(2.205)	67	(2.638)	49	(1.929)	21	(0.827)	170	(6.693)	8	(0.315)	6	(0.236)	58	(2.283)
010185136	CM3 / *MT3*	55	(2.165)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29	(1.142)	200.5	(7.894)	12	(0.472)	10	(0.394)	66	(2.598)
010185146	CM4 / *MT4*	60	(2.362)	68	(2.677)	103	(4.055)	62	(2.441)	33	(1.299)	231	(9.094)	15	(0.591)	12	(0.472)	74	(2.913)
010185156	CM5 / *MT5*	62	(2.441)	82	(3.228)	136	(5.354)	80	(3.150)	36	(1.417)	280	(11.024)	18	(0.709)	14	(0.551)	87	(3.425)
010185166	CM6 / *MT6*	90	(3.543)	123	(4.843)	189	(7.441)	119	(4.685)	57.5	(2.264)	401	(15.787)	25	(0.984)	20	(0.787)	130	(5.118)

LOAD CHARTS
DIAGRAMMI DI CARICO

RADIAL LOAD (WORKPIECE WEIGHT) in Kg.
CARICO RADIALE (PESO PEZZO) in Kg.



AXIAL LOAD in Kg.
CARICO ASSIALE in Kg.



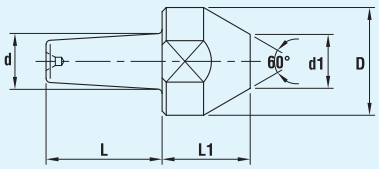
Notes: *The load values refer to the model with an integral shaft and a live center life of about 2000 operating hours. Tests have shown that the live center can however be used for a longer or shorter period than this, depending on the types of machining task it undertakes. For other types of live center (with interchangeable center and extended integral shaft) the load values indicated on the graphs should be reduced. These are a result of the center interchangeability in the first case and in the second are due to the extension of the integral shaft.*

Example: *Permitted maximum loads*
for the MT4 live center
with integral shaft at n = 1000 r.p.m.
Radial load Q = 450 kg
Axial load Pa = 900 kg

Note: i valori di carico riportati si riferiscono al modello con albero integrale e ad una durata della contropunta di circa 2.000 ore di lavoro. Le prove hanno comunque dimostrato che si possono ottenere durate superiori o inferiori a seconda delle lavorazioni. Per gli altri tipi di contropunte (con cuspide intercambiabile e albero integrale prolungato) è bene ridurre i valori di carico radiale ricavati dal grafico. Tali riduzioni di carico sono dovute nel primo caso all'intercambiabilità della cuspide e nel secondo al prolungamento dell'albero integrale.

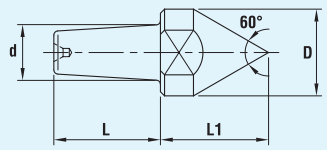
Esempio: Carichi ammissibili
della contropunta CM4
con albero integrale a n = 1000 giri/1'
Carico radiale Q = 450 kg
Carico assiale Pa = 900 kg

FR 94



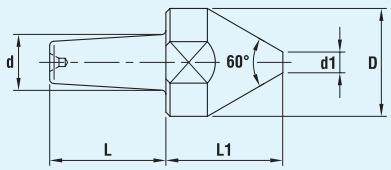
Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
		D		*L1*		*L*		*d*		*d1*	
030315103	CM2 / *MT2*	26	(1.024)	21	(0.827)	28	(1.102)	13.5	(0.531)	13	(0.512)
030315103	CM3 / *MT3*	26	(1.024)	21	(0.827)	28	(1.102)	13.5	(0.531)	13	(0.512)
030315204	CM4 / *MT4*	29	(1.142)	22	(0.866)	29	(1.142)	15.4	(0.606)	15	(0.591)
030315305	CM5 / *MT5*	34	(1.339)	26.5	(1.043)	30	(1.181)	20.3	(0.799)	15	(0.591)
030315406	CM6 / *MT6*	43	(1.693)	27	(1.063)	40	(1.575)	28	(1.102)	23	(0.906)

FR 95



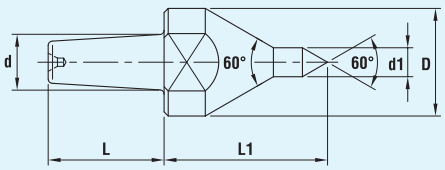
Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)							
		D		*L1*		*L*		*d*	
030316002	CM2 / *MT2*	21	(0.827)	26	(1.024)	28	(1.102)	13.5	(0.531)
030316103	CM3 / *MT3*	24	(0.945)	32.5	(1.280)	28	(1.102)	13.5	(0.531)
030316204	CM4 / *MT4*	29	(1.142)	35	(1.378)	29	(1.142)	15.4	(0.606)
030316305	CM5 / *MT5*	34	(1.339)	39.5	(1.555)	30	(1.181)	20.3	(0.799)
030316406	CM6 / *MT6*	43	(1.693)	47	(1.850)	40	(1.575)	28	(1.102)

FR 96



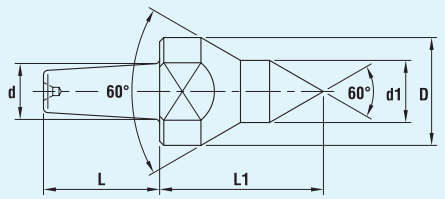
Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
		D		*L1*		*L*		*d*		*d1*	
030317103	CM2 / *MT2*	26	(1.024)	28	(1.102)	28	(1.102)	13.5	(0.531)	5	(0.197)
030317103	CM3 / *MT3*	26	(1.024)	28	(1.102)	28	(1.102)	13.5	(0.531)	5	(0.197)
030317204	CM4 / *MT4*	29	(1.142)	30	(1.181)	29	(1.142)	15.4	(0.606)	6	(0.236)
030317305	CM5 / *MT5*	34	(1.339)	33.5	(1.319)	30	(1.181)	20.3	(0.799)	7	(0.276)
030317406	CM6 / *MT6*	43	(1.693)	36	(1.417)	40	(1.575)	28	(1.102)	13	(0.512)

FR 97 Ø 7



Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
		D		*L1*		*L*		*d*		*d1*	
030318103	CM2 / *MT2*	24	(0.945)	39.5	(1.555)	28	(1.102)	13.5	(0.531)	7	(0.276)
030318103	CM3 / *MT3*	24	(0.945)	39.5	(1.555)	28	(1.102)	13.5	(0.531)	7	(0.276)
030318204	CM4 / *MT4*	24	(0.945)	42	(1.654)	29	(1.142)	15.4	(0.606)	7	(0.276)
030318305	CM5 / *MT5*	24	(0.945)	46	(1.811)	30	(1.181)	20.3	(0.799)	7	(0.276)

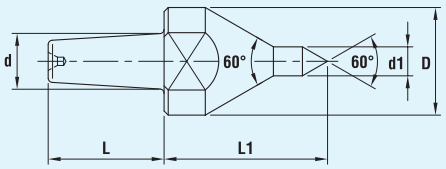
FR 97 Ø 15



Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
		D		*L1*		*L*		*d*		*d1*	
030318113	CM2 / *MT2*	24	(0.945)	39.5	(1.555)	28	(1.102)	13.5	(0.531)	15	(0.591)
030318113	CM3 / *MT3*	24	(0.945)	39.5	(1.555)	28	(1.102)	13.5	(0.531)	15	(0.591)
030318214	CM4 / *MT4*	24	(0.945)	42	(1.654)	29	(1.142)	15.4	(0.606)	15	(0.591)
030318315	CM5 / *MT5*	24	(0.945)	46	(1.811)	30	(1.181)	20.3	(0.799)	15	(0.591)

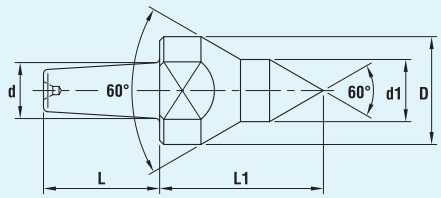
CONTACT US FOR ANY SPECIAL REQUEST! **PER RICHIESTE DI CUSPIDI SPECIALI NON ESITATE A CONTATTARCI!**

FR 97 Ø 13



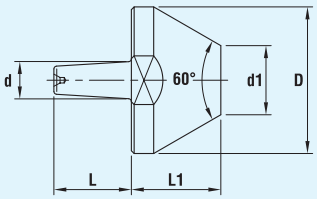
Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
		D		*L1*		*L*		*d*		*d1*	
030318406	CM6 / *MT6*	34	(1.339)	61	(2.402)	40	(1.575)	28	(1.102)	13	(0.512)

FR 97 Ø 20



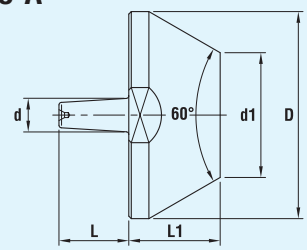
Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
		D		*L1*		*L*		*d*		*d1*	
030318416	CM6 / *MT6*	34	(1.339)	61	(2.402)	40	(1.575)	28	(1.102)	20	(0.787)

FR 98



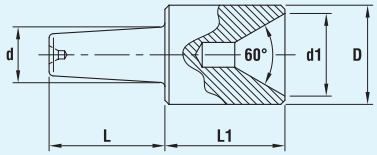
Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
		D		*L1*		*L*		*d*		*d1*	
030319103	CM2 / *MT2*	53	(2.087)	32.3	(1.272)	28	(1.102)	13.5	(0.531)	25	(0.984)
030319103	CM3 / *MT3*	53	(2.087)	32.3	(1.272)	28	(1.102)	13.5	(0.531)	25	(0.984)
030319204	CM4 / *MT4*	53	(2.087)	32.3	(1.272)	29	(1.142)	15.4	(0.606)	25	(0.984)
030319305	CM5 / *MT5*	53	(2.087)	32.3	(1.272)	30	(1.181)	20.3	(0.799)	25	(0.984)
030319406	CM6 / *MT6*	73	(2.874)	35	(1.378)	40	(1.575)	28	(1.102)	42	(1.654)

FR 98-A



Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
		D		*L1*		*L*		*d*		*d1*	
030319113	CM2 / *MT2*	83	(3.268)	36.6	(1.441)	28	(1.102)	13.5	(0.531)	50	(1.969)
030319113	CM3 / *MT3*	83	(3.268)	36.6	(1.441)	28	(1.102)	13.5	(0.531)	50	(1.969)
030319214	CM4 / *MT4*	83	(3.268)	36.6	(1.441)	29	(1.142)	15.4	(0.606)	50	(1.969)
030319315	CM5 / *MT5*	83	(3.268)	36.6	(1.441)	30	(1.181)	20.3	(0.799)	50	(1.969)
030319416	CM6 / *MT6*	103	(4.055)	36.6	(1.441)	40	(1.575)	28	(1.102)	70	(2.756)

FR 99



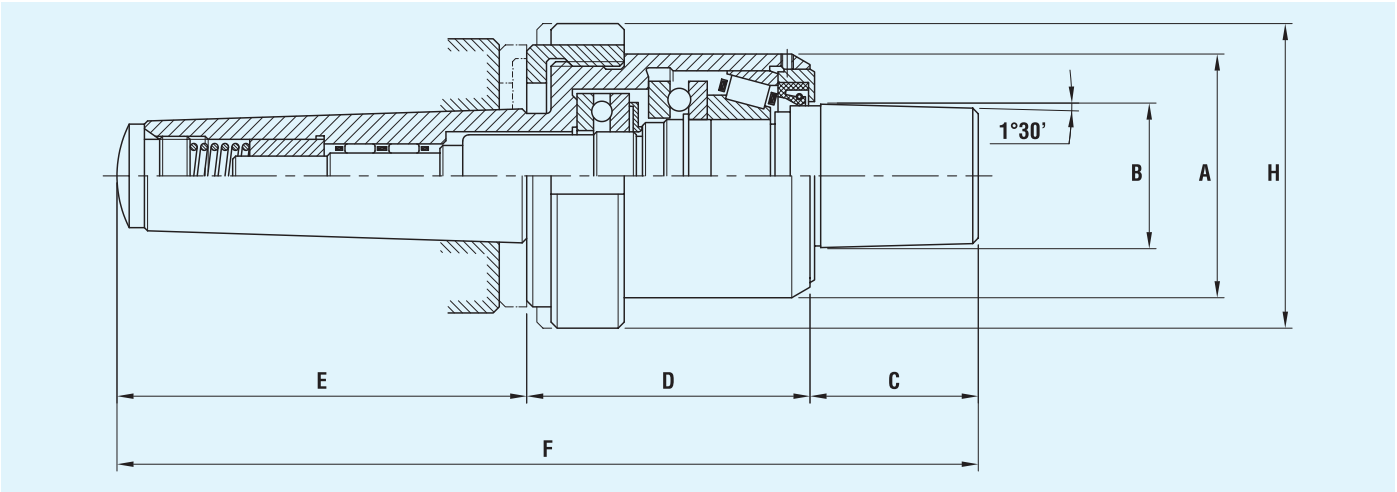
Code Codice	*For live center taper* Per contropunte cono	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
		D		*L1*		*L*		*d*		*d1*	
030320103	CM2 / *MT2*	24	(0.945)	29	(1.142)	28	(1.102)	13.5	(0.531)	20	(0.787)
030320103	CM3 / *MT3*	24	(0.945)	29	(1.142)	28	(1.102)	13.5	(0.531)	20	(0.787)
030320204	CM4 / *MT4*	27	(1.063)	32	(1.260)	29	(1.142)	15.4	(0.606)	22	(0.866)
030320305	CM5 / *MT5*	34	(1.339)	40	(1.575)	30	(1.181)	20.3	(0.799)	22	(0.866)
030320406	CM6 / *MT6*	48	(1.890)	46	(1.811)	40	(1.575)	28	(1.102)	40	(1.575)

CONTACT US FOR ANY SPECIAL REQUEST! **PER RICHIESTE DI CUSPIDI SPECIALI NON ESITATE A CONTATTARCI!**

FRB HEAD CARRYING LIVE CENTER FOR PIPE TURNING WITH AXIAL LOAD DISTRIBUTION AND ADJUSTABLE RADIAL TAPER ROLLER BEARING WITH SUPPORT AND EXTRACTION NUT, LUBRICATED WITH SPECIAL MAINTENANCE FREE GREASE

CONTROPUNTA «FRB» PORTA ANELLI CONICI PER TORNITURA DI TUBI, A CARICO ASSIALE DIFFERENZIATO E CUSCINETTO RADIALE A RULLI CONICI REGISTRABILE, CON GHIERA DI SPALLAMENTO ED ESTRAZIONE, E LUBRIFICAZIONE AUTONOMA A GRASSO SPECIALE

"80-T SERIES" - "SERIE 80-T"

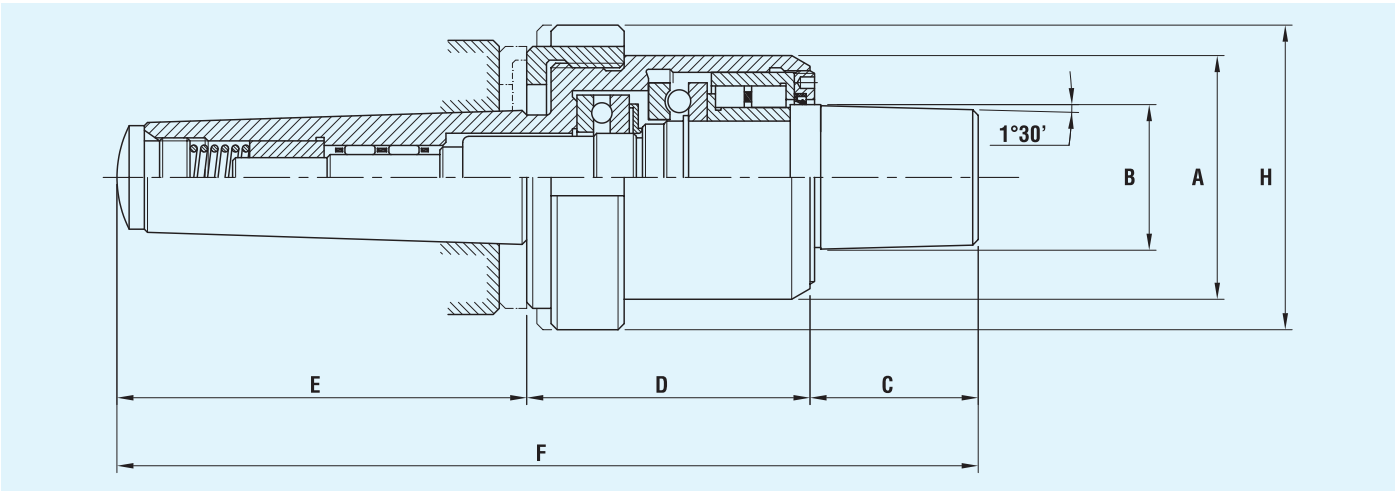


Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)													
		C		*D*		*E*		*A*		*B*		*F*		*H*	
010180127	CM2 / *MT2*	35	(1.378)	56	(2.205)	67	(2.638)	49	(1.929)	22	(0.866)	158	(6.220)	58	(2.283)
010180137	CM3 / *MT3*	42	(1.654)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29.7	(1.169)	187.5	(7.382)	66	(2.598)
010180147	CM4 / *MT4*	42	(1.654)	68	(2.677)	103	(4.055)	62	(2.441)	35	(1.378)	213	(8.386)	74	(2.913)
010180157	CM5 / *MT5*	42	(1.654)	83	(3.268)	136	(5.354)	80	(3.150)	35	(1.378)	260.5	(10.256)	88	(3.465)
010180167	CM6 / *MT6*	42.5	(1.673)	123	(4.843)	189	(7.441)	119	(4.685)	35	(1.378)	354	(13.937)	130	(5.118)

FRB HEAD CARRYING LIVE CENTER FOR PIPE TURNING WITH AXIAL LOAD DISTRIBUTION AND RADIAL CYLINDRICAL ROLLER BEARING WITH SUPPORT AND EXTRACTION NUT, LUBRICATED WITH SPECIAL MAINTENANCE FREE GREASE

CONTROPUNTA «FRB» PORTA ANELLI CONICI PER TORNITURA DI TUBI, A CARICO ASSIALE DIFFERENZIATO CON CUSCINETTO RADIALE A RULLI CILINDRICI, CON GHIERA DI SPALLAMENTO ED ESTRAZIONE, E LUBRIFICAZIONE AUTONOMA A GRASSO SPECIALE

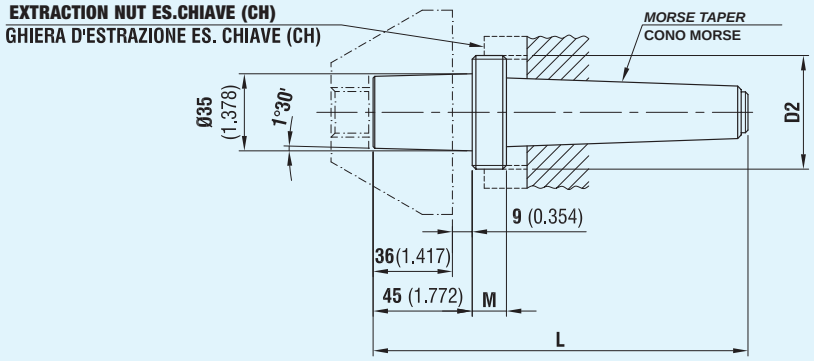
"85-T SERIES" - "SERIE 85-T"



Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)													
		C		*D*		*E*		*A*		*B*		*F*		*H*	
010185127	CM2 / *MT2*	35	(1.378)	56	(2.205)	67	(2.638)	49	(1.929)	22	(0.866)	158	(6.220)	58	(2.283)
010185137	CM3 / *MT3*	42	(1.654)	62.5	(2.461)	83	(3.268)	56.5	(2.224)	29.7	(1.169)	187.5	(7.382)	66	(2.598)
010185147	CM4 / *MT4*	42	(1.654)	68	(2.677)	103	(4.055)	62	(2.441)	35	(1.378)	213	(8.386)	74	(2.913)
010185157	CM5 / *MT5*	42	(1.654)	83	(3.268)	136	(5.354)	80	(3.150)	35	(1.378)	260.5	(10.256)	88	(3.465)
010185167	CM6 / *MT6*	42.5	(1.673)	123	(4.843)	189	(7.441)	119	(4.685)	35	(1.378)	354	(13.937)	130	(5.118)

HEAD CARRYING DEAD CENTER WITH EXTRACTION THREAD FOR PIPE TURNING

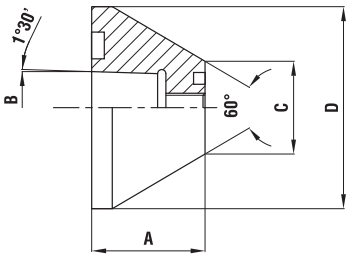
CONTROPUNTE FISSE PORTA ANELLI CONICI CON FILETTO D'ESTRAZIONE PER TORNITURA DI TUBI



Code Codice	Morse Taper Cono Morse	Dimensions in mm (inch) / Dimensioni in mm (pollici)			
		D2	L	M	CH
123100926	CM3 / *MT3*	M48 X 1.5	145 (5.709)	14 (0.551)	60 (2.362)
123100927	CM4 / *MT4*	M48 X 1.5	170 (6.693)	16 (0.630)	60 (2.362)
123100928	CM5 / *MT5*	M48 X 1.5	201 (7.913)	16 (0.630)	60 (2.362)
123100929	CM6 / *MT6*	M69 X 2	263 (10.354)	28 (1.102)	80 (3.150)

HEADS FOR TURNING AND GRINDING OF PIPES

ANELLI CONICI PER TORNITURA E RETTIFICA DI TUBI



Can be fitted to: FRB head carrying live centers with axial load distribution and FRB head carrying live centers for grinding.
They can be manufactured with different angles on customer's request.
Applicabili a: Contropunte FRB a Carico Assiale Differenziato porta anelli conici e contropunte FRB per Rettifica porta anelli conici.
Eseguibili con angoli diversi su richiesta del cliente.

FOR LIVE CENTERS WITH MT4-MT5-MT6-MT7-M80-M100 TAPERS
PER CONTROPUNTE CON CONO CM4-CM5-CM6-CM7-M80-M100

Code Codice	Dimensions in mm (inch) / Dimensioni in mm (pollici)			
	A	B	C	D
040400265	55 (2.165)	35 (1.378)	45 (1.772)	98 (3.858)
040400266	55 (2.165)	35 (1.378)	95 (3.740)	148 (5.827)
040400267	55 (2.165)	35 (1.378)	145 (5.709)	198 (7.795)
040400268	55 (2.165)	35 (1.378)	195 (7.677)	248 (9.764)
040400269	55 (2.165)	35 (1.378)	245 (9.646)	298 (11.732)
040400270	55 (2.165)	35 (1.378)	295 (11.614)	348 (13.701)
040400271	55 (2.165)	35 (1.378)	345 (13.583)	398 (15.669)
040400272	55 (2.165)	35 (1.378)	395 (15.551)	448 (17.638)
040400273	55 (2.165)	35 (1.378)	445 (17.520)	498 (19.606)

FOR LIVE CENTERS WITH MT3
PER CONTROPUNTE CON CONO MORSE 3

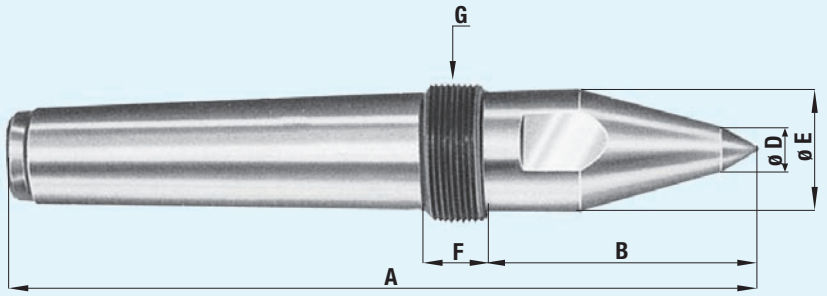
Code Codice	Dimensions in mm (inch) / Dimensioni in mm (pollici)			
	A	B	C	D
040400274	55 (2.165)	29.5 (1.161)	45 (1.772)	98 (3.858)
040400275	55 (2.165)	29.5 (1.161)	95 (3.740)	148 (5.827)
040400276	55 (2.165)	29.5 (1.161)	145 (5.709)	198 (7.795)
040400277	55 (2.165)	29.5 (1.161)	195 (7.677)	248 (9.764)

FOR LIVE CENTERS WITH MT2
PER CONTROPUNTE CON CONO MORSE 2

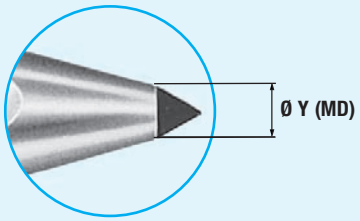
Code Codice	Dimensions in mm (inch) / Dimensioni in mm (pollici)			
	A	B	C	D
040400278	50 (1.969)	22 (0.866)	40 (1.575)	85 (3.346)
040400279	50 (1.969)	22 (0.866)	80 (3.150)	125 (4.921)

DEAD CENTERS WITH EXTRACTION THREAD FOR TURNING MADE OF SPECIAL HARDENED STEEL AND VERSION WITH CARBIDE TIP

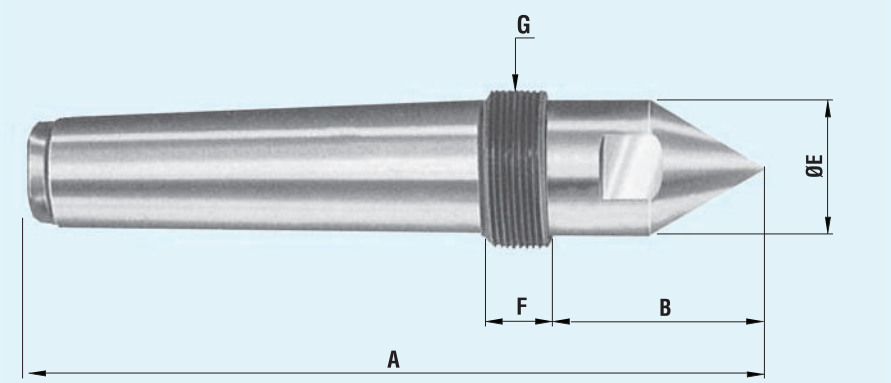
PUNTE FISSE CON FILETTO D'ESTRAZIONE PER TORNIO CON CORPO IN ACCIAIO SPECIALE A TUTTA TEMPRA E VERSIONE CON PUNTA IN METALLO DURO

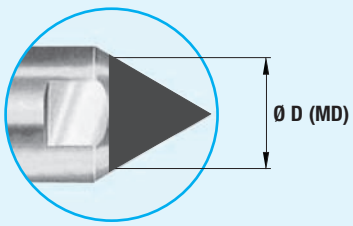


VERSION WITH HARD METAL
VERSIONE CON MD



Code H.M. Codice M.D.	*Code Steel* Codice Acc.	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)						*Ø Y (H.M.)* Ø Y (M.D.)
			A	*B*	*Ø D*	*Ø E*	*F*	*G*	
124100103	121248003	CM3 / *MT3*	145 (5.709)	45 (1.772)	13 (0.512)	24 (0.945)	15 (0.591)	M36 X 1.5	12 (0.472)
124100104	121248004	CM4 / *MT4*	195 (7.677)	70 (2.756)	13 (0.512)	32 (1.260)	16 (0.630)	M36 X 1.5	14 (0.551)
124100105	121248105	CM5 / *MT5*	230 (9.055)	74 (2.913)	20 (0.787)	42 (1.654)	16 (0.630)	M48 X 1.5	16 (0.630)

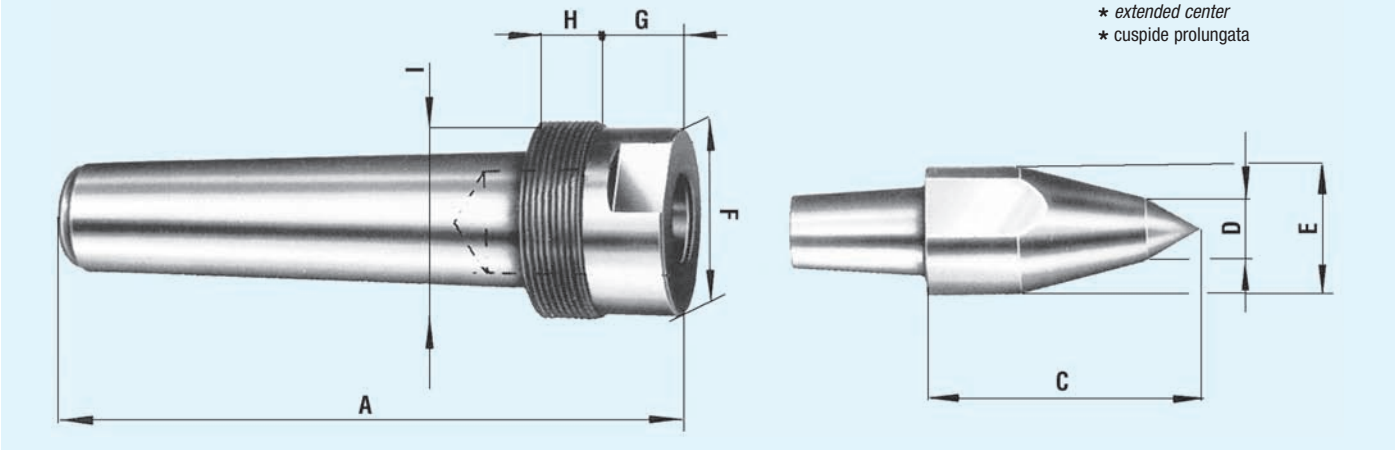




Code H.M. Codice M.D.	*Code Steel* Codice Acc.	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					*Ø D (H.M.)* Ø D (M.D.)
			A	*B*	*Ø E*	*F*	*G*	
124200183	124300243	CM3 / *MT3*	138 (5.433)	38 (1.496)	24 (0.945)	15 (0.591)	M36 X 1.5	18 (0.709)
124200264	124300324	CM4 / *MT4*	177 (6.969)	52 (2.047)	32 (1.260)	16 (0.630)	M36 X 1.5	26 (1.024)
124200305	124300425	CM5 / *MT5*	220 (8.661)	64 (2.519)	42 (1.654)	16 (0.630)	M48 X 1.5	30 (1.181)
	124300646	CM6 / *MT6*	294 (11.575)	70 (2.756)	64 (2.519)	30 (1.181)	M69 X 2	

CENTER CARRYING DEAD CENTER WITH EXTRACTION THREAD FOR SHAFT AND PIPE TURNING

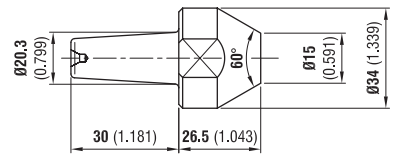
CONTROPUNTE FISSE PORTA CUSPIDE INTERCAMBIABILE CON FILETTO D'ESTRAZIONE PER TORNITURA DI ALBERI E TUBI



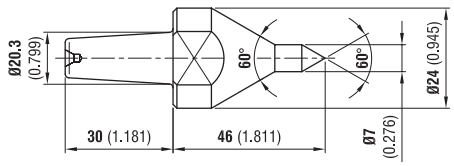
* *extended center*
* cuspide prolungata

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)							
		A	*C*	*Ø D*	*Ø E*	*Ø F*	*G*	*H*	*I*
122100926	CM3/MT3	110 (4.331)	-	-	-	42 (1.654)	10 (0.394)	10 (0.394)	M48 X 1.5
122100927	CM4/MT4	141 (5.551)	-	-	-	42 (1.654)	18 (0.709)	16 (0.630)	M48 X 1.5
122100928	CM5/MT5	176 (6.929)	-	-	-	42 (1.654)	18 (0.709)	16 (0.630)	M48 X 1.5
122100929	CM6/MT6	248 (9.764)	-	-	-	65 (2.559)	30 (1.181)	28 (1.102)	M69 X 2
*122114005	-	-	62 (2.441)	15 (0.591)	24 (0.945)	-	-	-	-

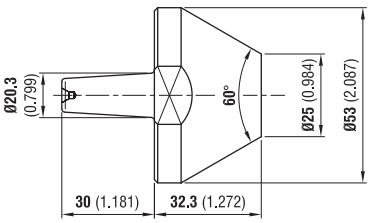
INTERCHANGEABLE CENTERS / CUSPIDI INTERCAMBIABILI



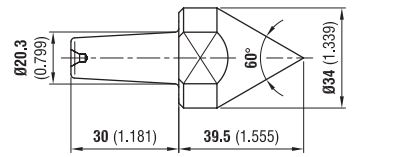
FR 94 cod. 030315305



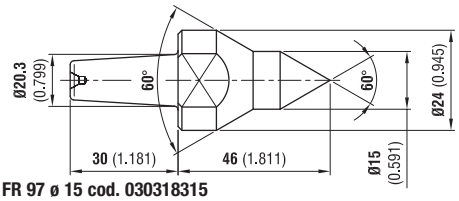
FR 97 ø 7 cod. 030318305



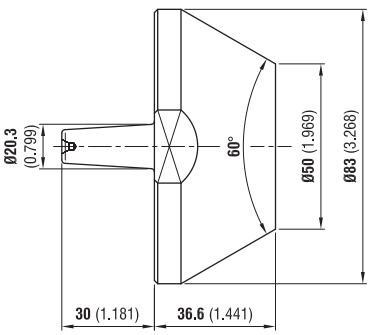
FR 98 cod. 030319305



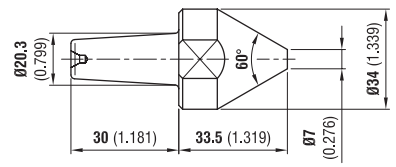
FR 95 cod. 030316305



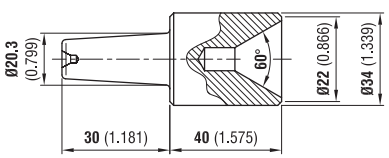
FR 97 ø 15 cod. 030318315



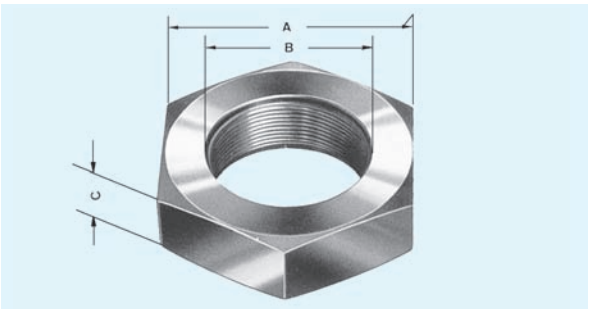
FR 98-A cod. 030319315



FR 96 cod. 030317305



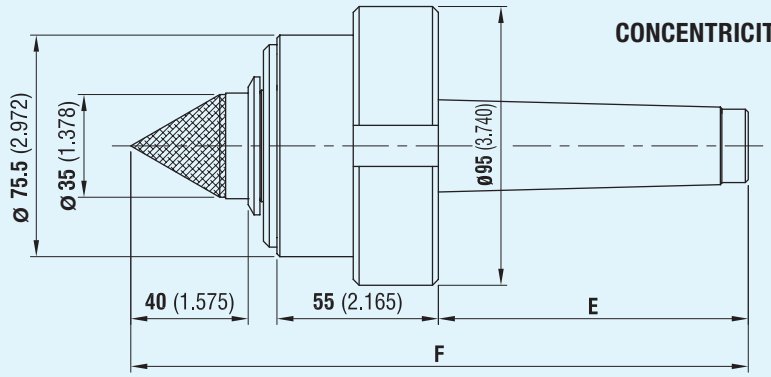
FR 99 cod. 030320305



EXTRACTION NUT FOR DEAD CENTERS
GHIERA DI ESTRAZIONE PER CONTROPUNTE FISSE

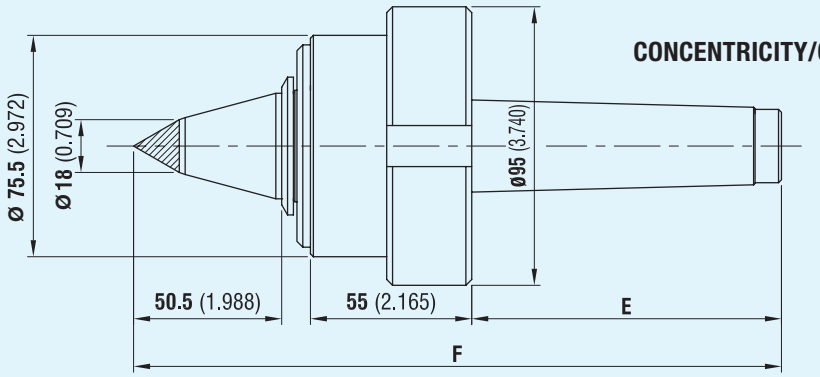
Code Codice	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
	A		*B*	*C*		
121249004	50	(1.969)	M36 X 1.5	20	(0.787)	
121249105	60	(2.362)	M48 X 1.5	20	(0.787)	
121249206	80	(3.150)	M69 X 2	28	(1.102)	

CONCENTRICITY/CONCENTRICITÁ 0.005



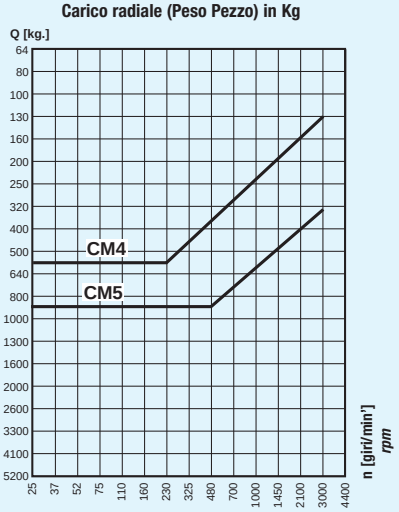
Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)			
		E		*F*	
010108145	CM4 / *MT4*	105.5	(4.154)	210.5	(8.287)
010108155	CM5 / *MT5*	132.5	(5.217)	237.5	(9.350)

CONCENTRICITY/CONCENTRICITÁ 0.005

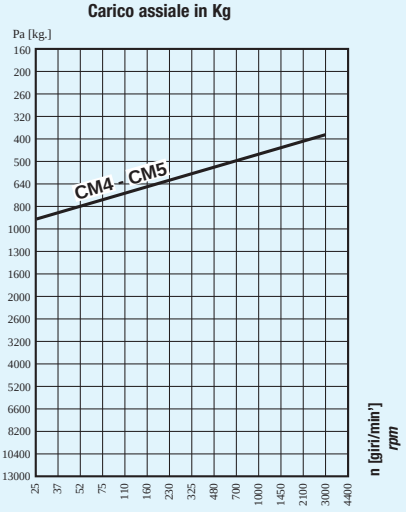


Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)			
		E		*F*	
010108146	CM4 / *MT4*	105.5	(4.154)	221	(8.701)
010108156	CM5 / *MT5*	132.5	(5.217)	248	(9.764)

Radial Load (Workpiece weight)in Kg
Carico radiale (Peso Pezzo) in Kg



Axial Load in Kg
Carico assiale in Kg

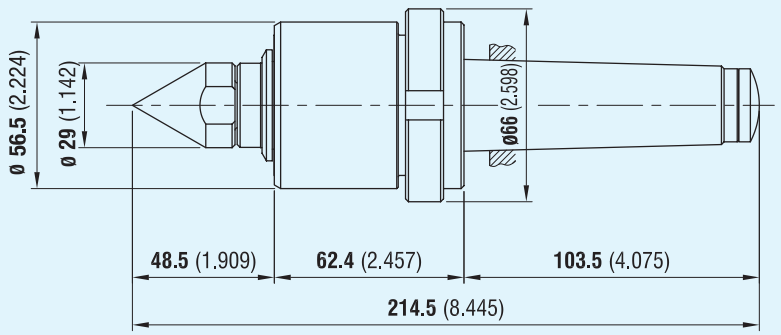


INDICATIVE VALUES. For further and more detailed information, contact our technical office.

VALORI INDICATIVI. Per maggiori indicazioni su utilizzo delle contropunte contattare il ns. servizio tecnico

HIGH SPEED FRB LIVE CENTERS - "2006 SERIES"

CONTROPUNTE FRB PER TORNIRE AD ALTE VELOCITÁ - SERIE 2006



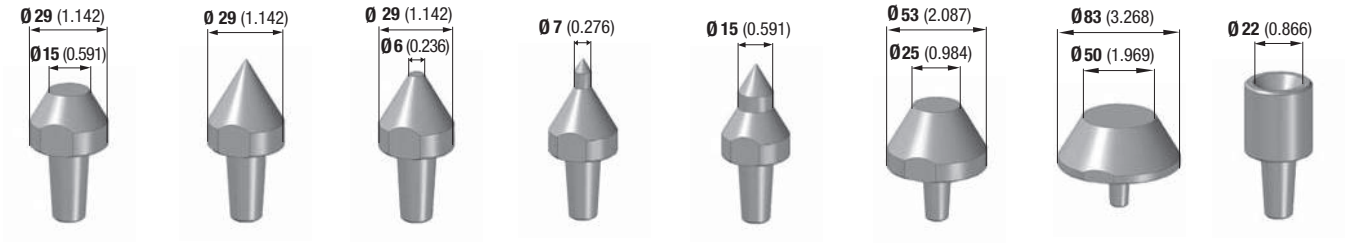
CONCENTRICITY/CONCENTRICITÁ 0.008

Code Codice	*Morse Taper* Cono Morse
010106142	CM4 / *MT4*
010106152	CM5 / *MT5*

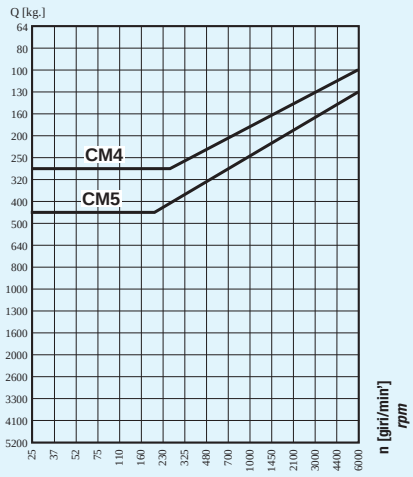
INTERCHANGEABLE CENTERS

CUSPIDI INTERCAMBIABILI

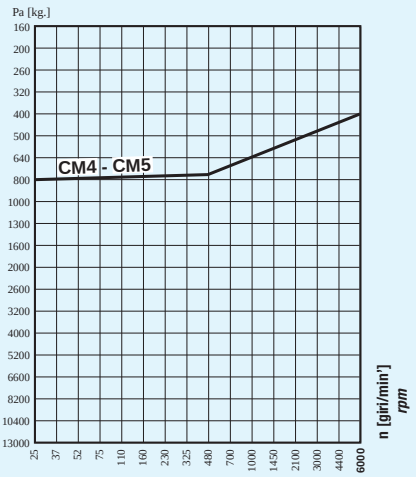
FR94	FR95	FR96	FR97 Ø7	FR97 Ø15	FR98	FR98-A	FR99
Code / Codice							
030315204	030316204	030317204	030318204	030318214	030319204	030319214	030320204



Radial Load (Workpiece weight) in Kg
Carico radiale (Peso Pezzo) in Kg



Axial Load in Kg
Carico assiale in Kg

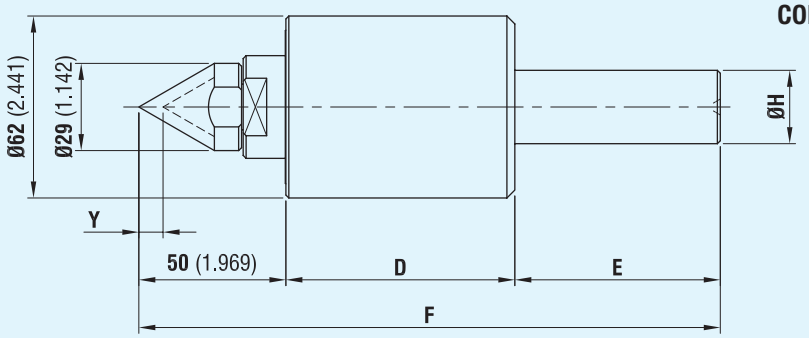


INDICATIVE VALUES. For further and more detailed information, contact our technical office.
VALORI INDICATIVI. Per maggiori indicazioni su utilizzo delle contropunte contattare il ns. servizio tecnico

SPRUNG LIVE CENTERS FOR AUTHOMATIC LATHES - "81 REINFORCED SERIES"

CONTROPUNTE MOLLEGGIATE FRB PER TORNITURA - SERIE 81 RINFORZATA

CONCENTRICITY/CONCENTRICITÁ 0.010

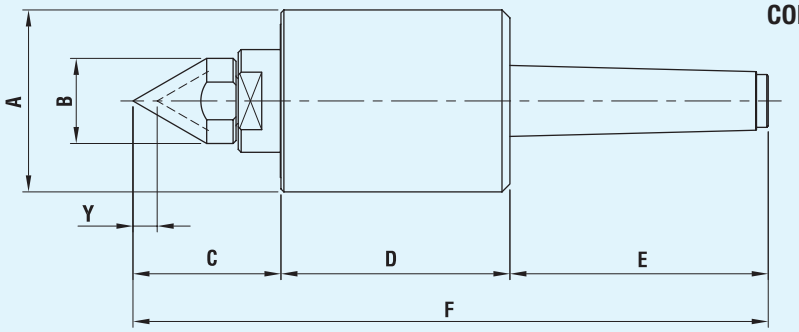


Y=

Stroke / Corsa mm (inch)	*Load* / Carico KG (lb)
1.5 (0.059)	200 (440.92)
3 (0.118)	400 (881.83)
4.5 (0.177)	600 (1322.75)

Code Codice	*Shank* Gambo	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)			
		D	*E*	*F*	*Ø H*
010180625	Cylindrical/Cilindrico	75 (2.953)	65 (2.559)	190 (7.480)	25 (0.984)
010180632	Cylindrical/Cilindrico	75 (2.953)	65 (2.559)	190 (7.480)	32 (1.260)

CONCENTRICITY/CONCENTRICITÁ 0.010



Y=

Stroke / Corsa mm (inch)	*Load* / Carico KG (lb)
1.5 (0.059)	200 (440.92)
3 (0.118)	400 (881.83)
4.5 (0.177)	600 (1322.75)

Code Codice	*Morse Taper* Cono morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
		A	*B*	*C*	*D*	*E*	*F*
010181204	CM3 / *MT3*	62 (2.441)	29 (1.142)	50 (1.969)	78 (3.071)	88 (3.465)	216 (8.504)

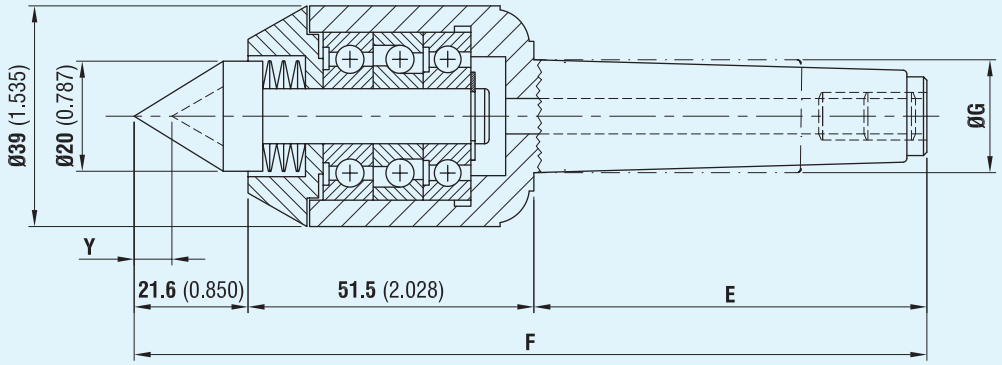
INTERCHANGEABLE CENTERS

CUSPIDI INTERCAMBIABILI

FR94	FR95	FR96	FR97 Ø7	FR97 Ø15	FR98	FR98-A	FR99
Code / Codice							
030315204	030316204	030317204	030318204	030318214	030319204	030319214	030320204

CONTROPUNTA ROTANTE MOLLEGGIATA SERIE 81

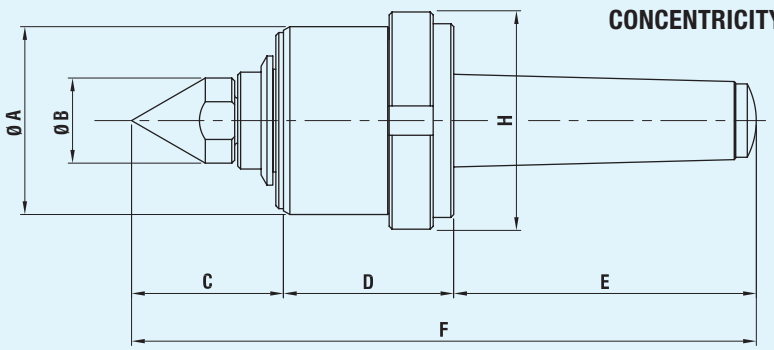
CONCENTRICITY/CONCENTRICITÁ 0.010



Y=

Stroke / Corsa	*Load* / Carico
mm (inch)	KG (lb)
3 (0.118)	90 (198.41)

Code Codice	*Shank* Gambo	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
		E		*F*		*Ø G*	
010180715	*Cylindrical* / Cilindrico	50	(1.969)	123.1	(4.846)	15 h7	(0.591)
010180819	*Cylindrical* / Cilindrico	50	(1.969)	123.1	(4.846)	19.05 h7	(0.750)
010180925	*Cylindrical* / Cilindrico	50	(1.969)	123.1	(4.846)	25.4 h7	(1.000)
010181001	*Taper 1* / Cono Morse 1	60	(2.362)	133.1	(5.240)	12.2	(0.480)
010181102	*Taper 2* / Cono Morse 2	71	(2.795)	144.1	(5.673)	18	(0.709)
010181203	*Taper 3* / Cono Morse 3	88	(3.465)	161.1	(6.343)	24.1	(0.949)
010181304	*Taper 4* / Cono Morse 4	110	(4.331)	183.1	(7.209)	31.6	(1.244)



Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)											
		Ø A		*Ø B*		*C*		*D*		*E*		*F*	*Ø H*
010100103	CM3 / *MT3*	56	(2.205)	24	(0.945)	47	(1.850)	53	(2.087)	85.5	(3.366)	185.5 (7.303)	64 (2.520)
010100104	CM4 / *MT4*	64	(2.520)	29	(1.142)	52	(2.047)	58	(2.283)	103	(4.055)	213 (8.386)	74 (2.913)
010100105	CM5 / *MT5*	78	(3.071)	34	(1.339)	58	(2.283)	64.5	(2.539)	136	(5.354)	258.5 (10.177)	87 (3.425)

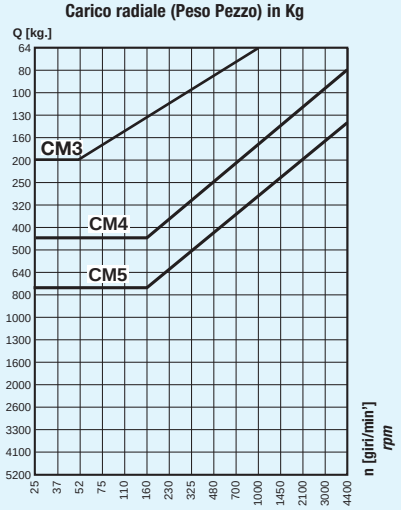
INTERCHANGEABLE CENTERS

CUSPIDI INTERCAMBIABILI

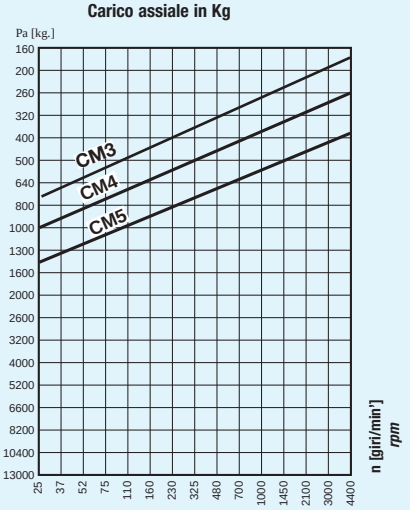
FOR THE DIMENSIONAL FEATURES SEE PAGES 12-13
PER LE CARATTERISTICHE DIMENSIONALI VEDERE PAG. 12-13

	FR94	FR95	FR96	FR97 Ø7	FR97 Ø15	FR98	FR98-A	FR99
	Code / Codice							
CM3 / *MT3*	030315103	030316103	030317103	030318103	030318113	030319103	030319113	030320103
CM4 / *MT4*	030315204	030316204	030317204	030318204	030318214	030319204	030319214	030320204
CM5 / *MT5*	030315305	030316305	030317305	030318305	030318315	030319305	030319315	030320305

Radial Load (Workpiece weight)in Kg
Carico radiale (Peso Pezzo) in Kg



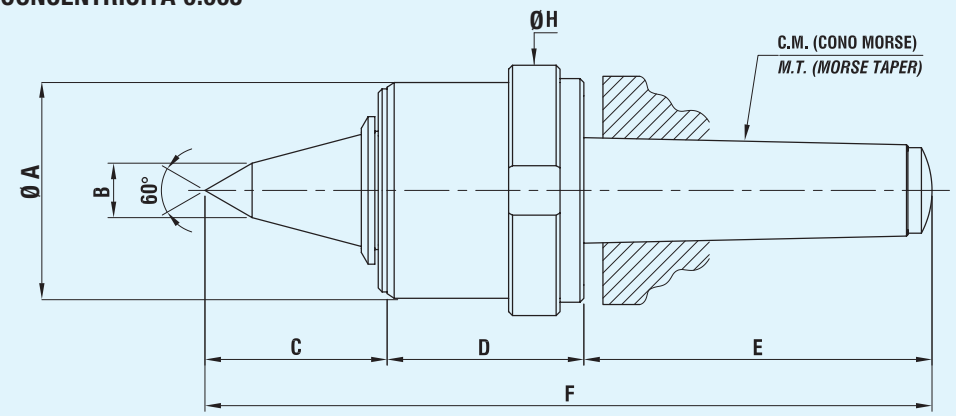
Axial Load in Kg
Carico assiale in Kg



INDICATIVE VALUES. For further and more detailed information, contact our technical office.
VALORI INDICATIVI. Per maggiori indicazioni su utilizzo delle contropunte contattare il ns. servizio tecnico

FRB LIVE CENTERS FOR TURNING
WITH EXTENDED INTEGRAL SHAFT - "2000 SERIES" - ECOLINE
CONTROPUNTE FRB PER TORNITURA
CON ALBERO INTEGRALE PROLUNGATO - SERIE 2000 - ECOLINE

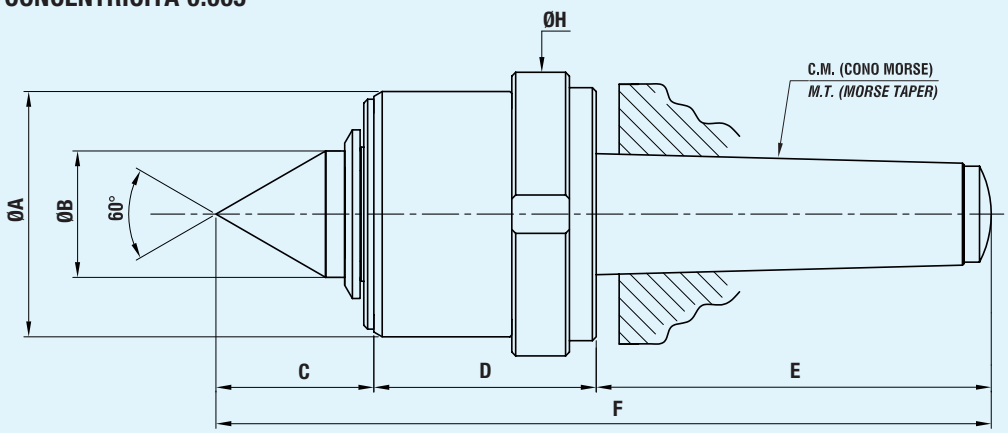
CONCENTRICITY/CONCENTRICITÁ 0.005



Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)											
		Ø A		*Ø B*		*C*		*D*		*E*		*F*		*Ø H*	
010100113	CM3 / *MT3*	56	(2.205)	14	(0.551)	47	(1.850)	53	(2.087)	85.5	(3.366)	185.5	(7.303)	64	(2.520)
010100114	CM4 / *MT4*	64	(2.520)	16	(0.630)	53	(2.087)	58	(2.283)	103	(4.055)	214	(8.429)	74	(2.913)
010100115	CM5 / *MT5*	78	(3.071)	16	(0.630)	66	(2.598)	64.5	(2.539)	136	(5.354)	266.5	(10.492)	87	(3.425)

FRB LIVE CENTERS FOR TURNING
WITH INTEGRAL SHAFT - "2000 SERIES" - ECOLINE
CONTROPUNTE FRB PER TORNITURA
CON ALBERO INTEGRALE - SERIE 2000 - ECOLINE

CONCENTRICITY/CONCENTRICITÁ 0.005



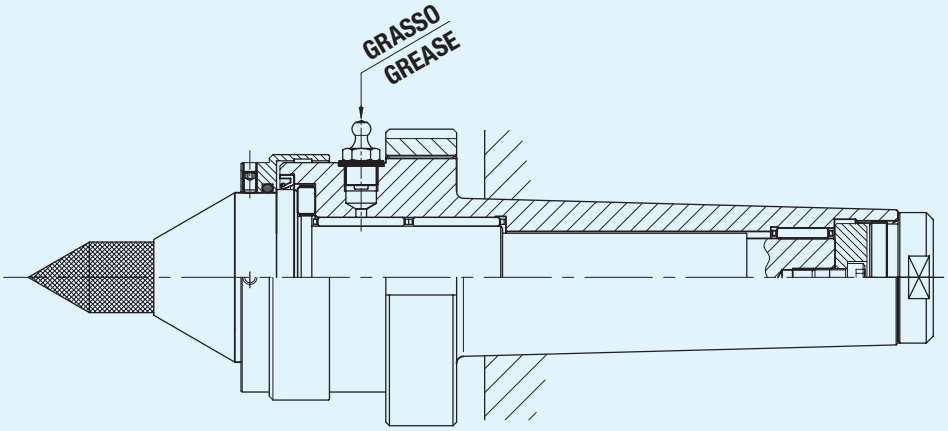
Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)											
		Ø A		*Ø B*		*C*		*D*		*E*		*F*		*Ø H*	
010100123	CM3 / *MT3*	56	(2.205)	29	(1.142)	37	(1.457)	53	(2.087)	85.5	(3.366)	175.5	(6.909)	64	(2.520)
010100124	CM4 / *MT4*	64	(2.520)	33	(1.299)	41	(1.641)	58	(2.283)	103	(4.055)	200	(7.874)	74	(2.913)
010100125	CM5 / *MT5*	78	(3.071)	36	(1.417)	47	(1.850)	64.5	(2.539)	136	(5.354)	247.5	(9.744)	87	(3.425)

INSTRUCTIONS FOR MAINTENANCE OF GREASE LUBRICATED LIVE CENTERS

Every 150 working hours lubricate with GREASE MOLYKOTE BR 2 PLUS through the suitable grease fitting.

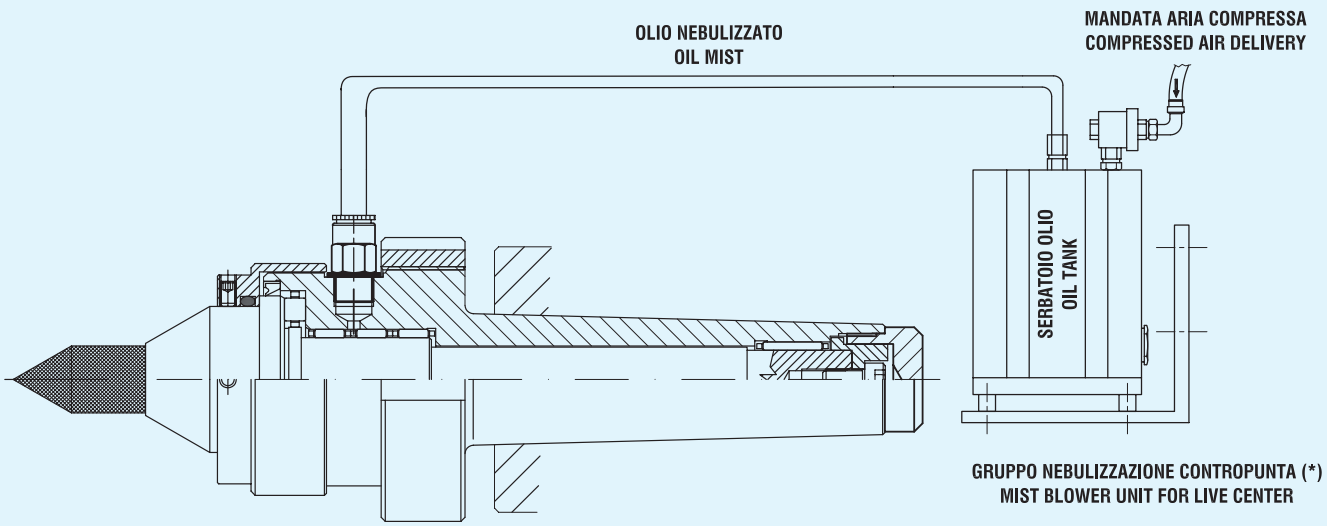
ISTRUZIONI PER MANUTENZIONE CONTROPUNTE LUBRIFICATE A GRASSO

Ogni 150 ore di lavoro lubrificare con GRASSO MOLYKOTE BR 2 PLUS dall'apposito raccordo.



OIL MIST LUBRICATION SYSTEM

SISTEMA DI LUBRIFICAZIONE AD OLIO NEBULIZZATO



**** Oil mist system (not supplied) must be used for the live center only***

*** Per un corretto utilizzo si raccomanda che l'impianto di nebulizzazione (non di nostra fornitura) sia esclusivamente per la contropunta**

Oil mist lubrication systems:

1° type: Fixture with total consumption of the delivery drop.
Pressure: 1.5 ÷ 2 bar
Drops of oil per minute: 2 ÷ 3

2° type: Fixture with a 10% consumption of the delivery drop and recovery of 90% of the drop.
Pressure: 3 ÷ 4 bar
Drops of oil per minute: 20 ÷ 30

(Oil mist system must be used for the live center only)
Recommended oil: Mobil DTE Oil Medium viscosity: ISO 46 or DTE Light ISO 32

Sistemi per lubrificazione contropunta ad olio nebulizzato

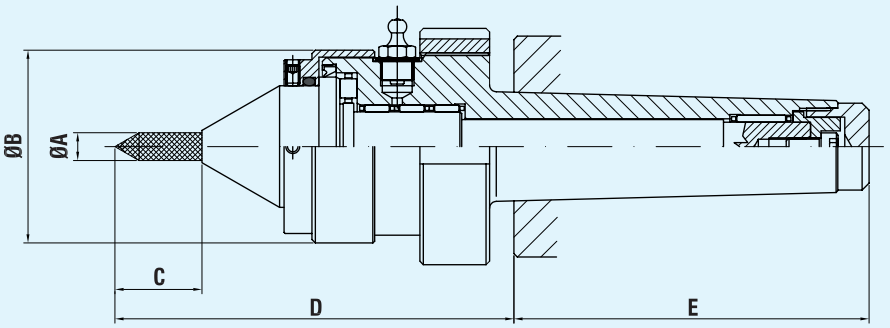
1° tipo: Apparecchio a totale consumo goccia erogata.
Pressione: 1.5 ÷ 2 bar
Gocce di olio al minuto: 2 ÷ 3

2° tipo: Apparecchio con consumo del 10% della goccia erogata e recupero del 90% della stessa.
Pressione: 3 ÷ 4 bar
Gocce di olio al minuto: 20 ÷ 30

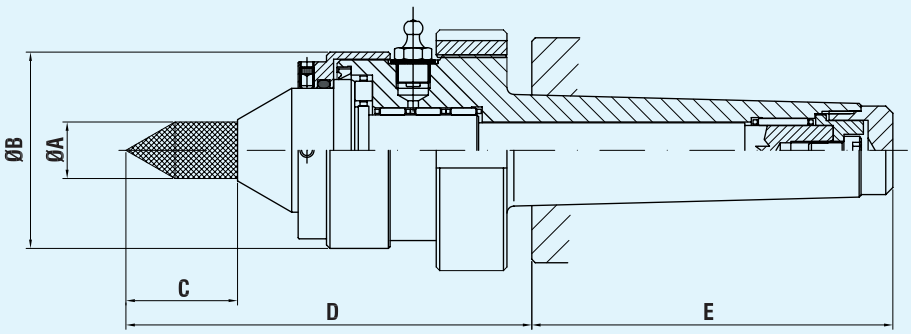
(Per la lubrificazione ad olio nebulizzato si raccomanda che il circuito sia esclusivamente per la contropunta). Olio consigliato Mobil DTE Oil Medium viscosità ISO 46 o DTE Light ISO 32

CONTROPUNTE PER RETTIFICA SERIE 92

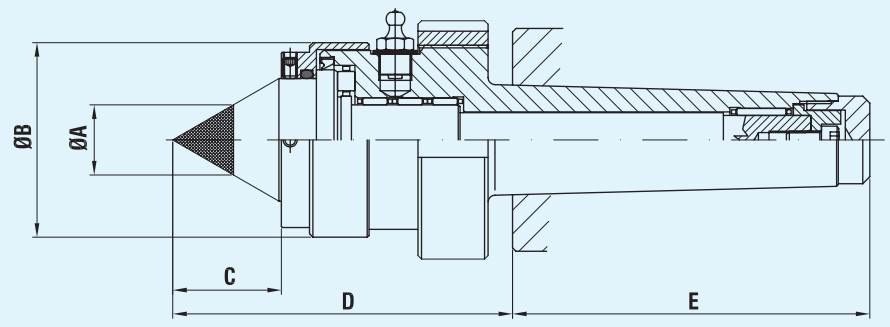
with tolerances / tolleranze: ***roundness* / rotondità** ***< 0.0015*** ***eccentricity* / eccentricità** ***< 0.0025***



Grease lubrication system - code Codice a grasso	*Oil mist lubrication system - code* Codice a olio neb.	*Morse Taper* Cono Morse	*Dimensions in mm. (inch.) /* Dimensioni in mm. (pollici)									
			Ø A (MD)		*Ø B*		*C*		*D*		*E*	
010921101	010921113	CM3/*MT3*	8	(0.315)	51	(2.008)	24.7	(0.972)	100	(3.937)	81.7	(3.217)
010921102	010921114	CM4/*MT4*	8	(0.315)	55.5	(2.185)	24.5	(0.965)	115	(4.528)	102	(4.016)
010921103	010921115	CM5/*MT5*	12	(0.472)	69.5	(2.736)	28.5	(1.122)	129	(5.079)	127	(5.000)



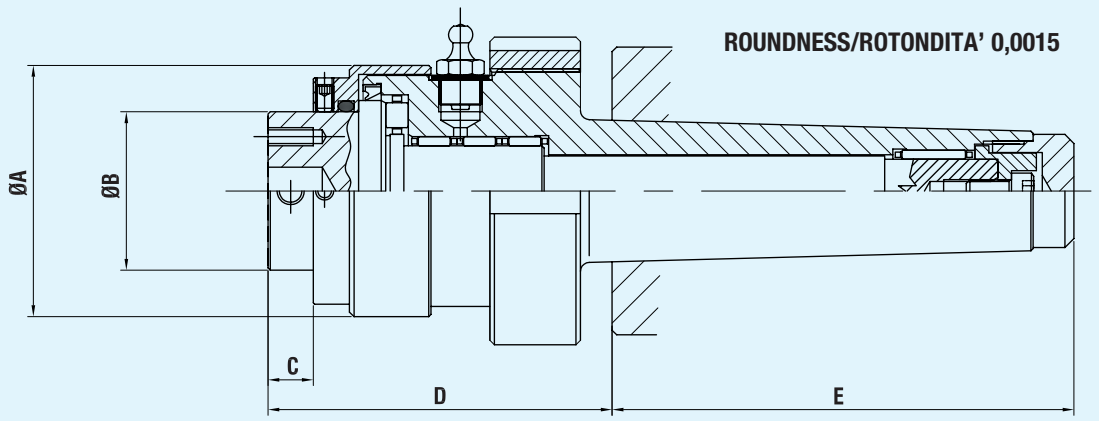
Grease lubrication system - code Codice a grasso	*Oil mist lubrication system - code* Codice a olio neb.	*Morse Taper* Cono Morse	*Dimensions in mm. (inch.) /* Dimensioni in mm. (pollici)									
			Ø A (MD)		*Ø B*		*C*		*D*		*E*	
010922101	010921123	CM3/*MT3*	16	(0.630)	51	(2.008)	31.5	(1.240)	100	(3.937)	81.7	(3.217)
010922102	010921124	CM4/*MT4*	16	(0.630)	55.5	(2.185)	31.5	(1.240)	115	(4.528)	102	(4.016)
010922103	010921125	CM5/*MT5*	20	(0.787)	69.5	(2.736)	35	(1.378)	129	(5.079)	127	(5.000)



Grease lubrication system - code Codice a grasso	*Oil mist lubrication system - code* Codice a olio neb.	*Morse Taper* Cono Morse	*Dimensions in mm. (inch.) /* Dimensioni in mm. (pollici)									
			Ø A (MD)		*Ø B*		*C*		*D*		*E*	
010923101	010921133	CM3/*MT3*	16	(0.630)	51	(2.008)	24.2	(0.953)	83	(3.268)	81.7	(3.217)
010923102	010921134	CM4/*MT4*	20	(0.787)	55.5	(2.185)	31	(1.220)	97	(3.819)	102	(4.016)
010923103	010921135	CM5/*MT5*	26	(1.024)	69.5	(2.736)	42.5	(1.673)	111	(4.370)	127	(5.000)

CENTER CARRYING LIVE CENTERS FOR GRINDING "92 SERIES"

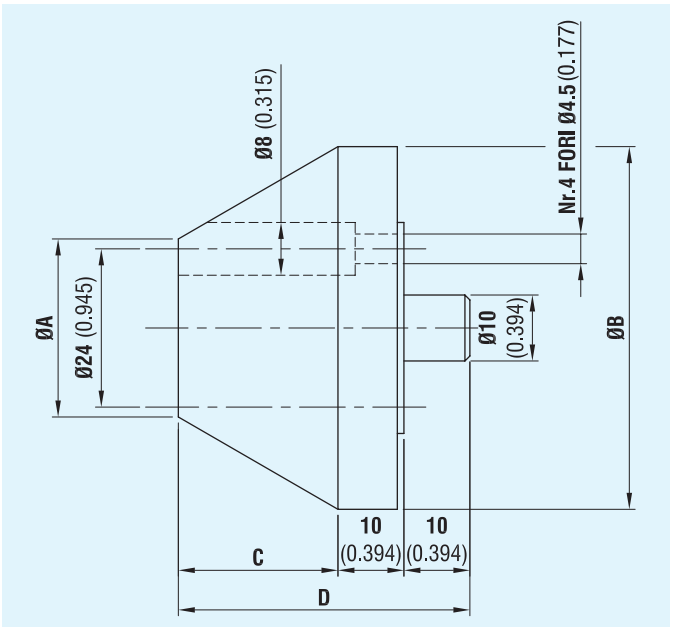
CONTROPUNTE PER RETTIFICA PORTA CUSPIDE SERIE 92

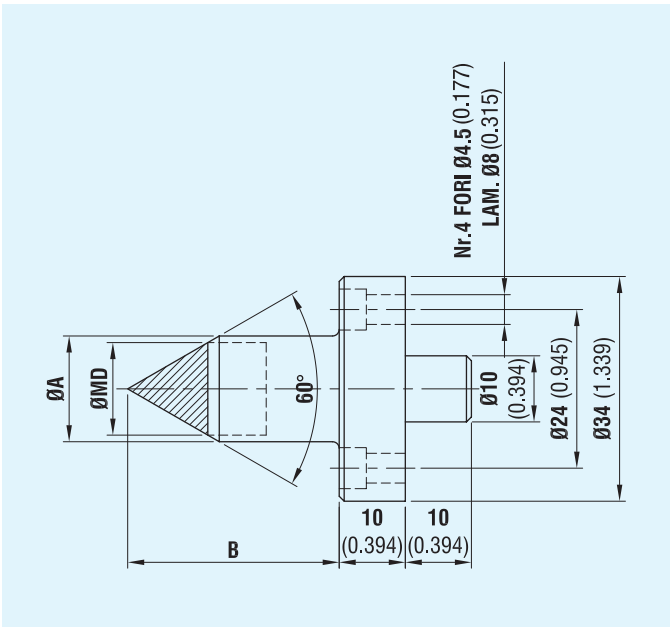


Grease lubrication system - code Codice a grasso	*Oil mist lubrication system - code* Codice a olio neb.	*Morse Taper* Cono Morse	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)									
			Ø A		*Ø B*		*C*		*D*		*E*	
010925101	010921153	CM3/*MT3*	49	(1.929)	32	(1.260)	10	(0.394)	68.5	(2.697)	81.7	(3.217)
010925102	010921154	CM4/*MT4*	55.5	(2.185)	35	(1.378)	10	(0.394)	76	(2.992)	102	(4.016)
010925103	010921155	CM5/*MT5*	65	(2.559)	48	(1.890)	10	(0.394)	79	(3.110)	127	(5.000)

CENTERS FOR CENTER CARRYING LIVE CENTER MT3 AND MT4

CUSPIDI PER CONTROPUNTE PORTA CUSPIDE CM3 E CM4





Code Codice	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)							
	Ø A		*Ø B*		*C*		*D*	
030392005	7	(0.276)	34	(1.339)	23.4	(0.921)	43.4	(1.709)
030392006	27	(1.063)	55	(2.165)	24.2	(0.953)	44.2	(1.740)
030392007	40	(1.575)	68	(2.677)	24.2	(0.953)	44.2	(1.740)
030392008	60	(2.362)	88	(3.465)	24.2	(0.953)	44.2	(1.740)

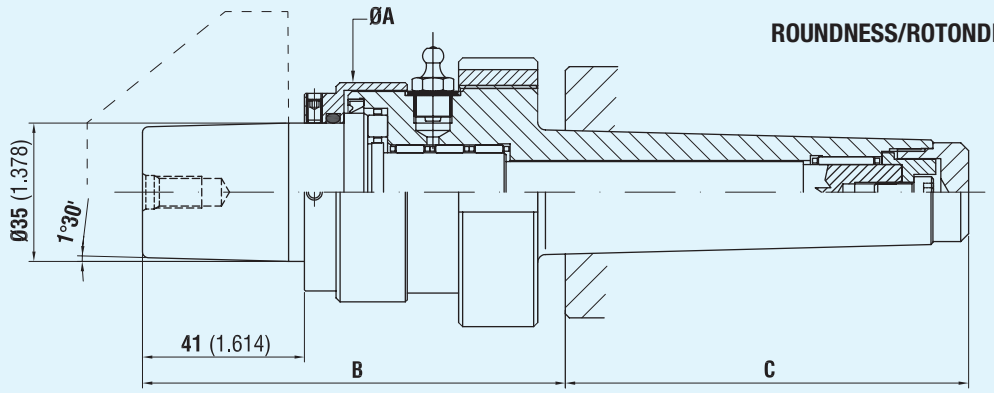
Code Codice	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
	Ø A		*Ø MD*		*B*	
030392001	8	(0.315)	6	(0.236)	25	(0.984)
030392002	10	(0.394)	8	(0.315)	27	(1.063)
030392003	12	(0.472)	10	(0.394)	29	(1.142)
030392004	16	(0.630)	14	(0.551)	32	(1.260)

CENTERS FOR LIVE CENTERS MT5
AVAILABLE ON REQUEST

CUSPIDI PER CONTROPUNTA CM5
DISPONIBILI SU RICHIESTA

HEAD CARRYING LIVE CENTER FOR GRINDING OF PIPES "92 SERIES"

CONTROPUNTE PER RETTIFICA TUBI PORTA ANELLI CONICI SERIE 92

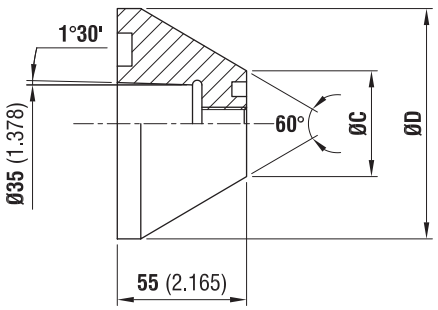


Grease lubrication system Codice a grasso	*Oil mist lubrication system* Codice a olio neb.	*Morse Taper* Cono Morse	*Dimensions in mm. (inch.)* / Dimensioni in mm. (pollici)					
			Ø A		*B*		*C*	
010924102	010921144	CM4/*MT4*	55.5	(2.185)	107	(4.213)	102	(4.016)
010924103	010921145	CM5/*MT5*	69.5	(2.736)	111	(4.370)	127	(5.000)

HEADS FOR GRINDING OF PIPES

ANELLI CONICI PER RETTIFICA DI TUBI

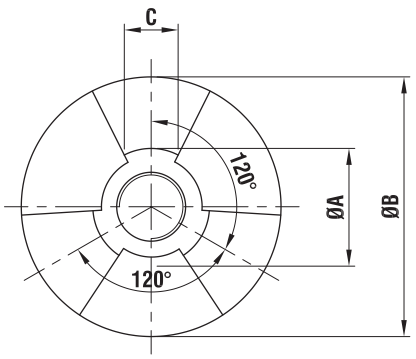
Code - Codice	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)			
	Ø C		*Ø D*	
040400265	45	(1.772)	98	(3.858)
040400266	95	(3.740)	148	(5.827)
040400267	145	(5.709)	198	(7.795)
040400268	195	(7.677)	248	(9.764)
040400269	245	(9.646)	298	(11.732)
040400270	295	(11.614)	348	(13.701)
040400271	345	(13.583)	398	(15.669)
040400272	395	(15.551)	448	(17.638)
040400273	445	(17.520)	498	(19.606)



HEADS WITH THREE CONTACT SECTORS

ANELLI CONICI CON 3 PUNTI DI CONTATTO

Code - Codice	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
	Ø A		*Ø B*		*C*	
040300265	45	(1.772)	98	(3.858)	20	(0.787)
040300266	95	(3.740)	148	(5.827)	30	(1.181)
040300267	145	(5.709)	198	(7.795)	40	(1.575)
040300268	195	(7.677)	248	(9.764)	50	(1.969)
040300269	245	(9.646)	298	(11.732)	60	(2.362)



FRB LIVE CENTER FOR GEAR CUTTING MACHINE "82 SERIES"

CONTROPUNTE ROTANTI FRB PER DENTATRICI SERIE 82

TECHNICAL FEATURES:

"82 Serie" live centers have been designed considering the specific machining features of the gear cutting machines. Interrupted cut of hobs requires the live center is extremely rigid (that is why it has been assembled with needle bearings) and it has not to reach high rotational speed.
One more important feature of these live centers is the reduced dimensions of their body in order to let the hob gets in and out from the gear. To increase rigidity of the live center, its shaft is manufactured of tool steel and throught hardened.

Maintenance:
Remove the screw ① and extract the shaft.
Then the shaft can be repaired or replaced by one of the interchangeable shafts.

If live centers standard are not those ones required, please complete the drawing below with needed dimensions.
All live centers are grease lubricated.

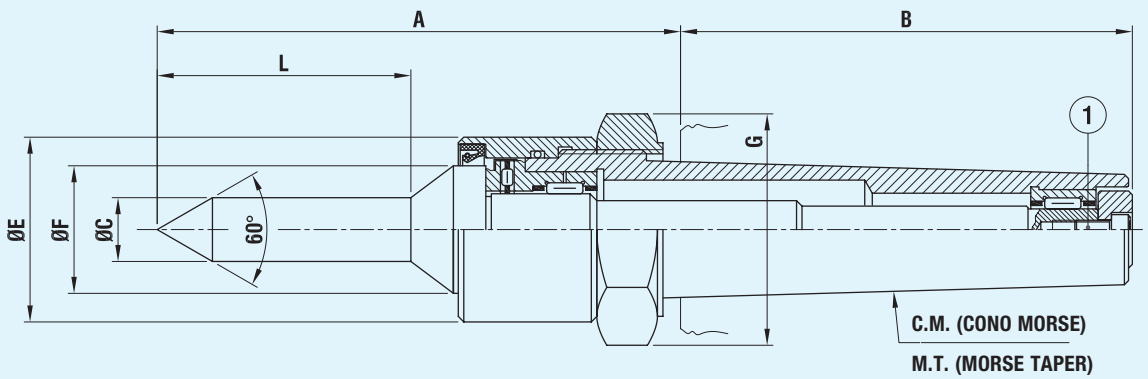
CARATTERISTICHE TECNICHE:

Le contropunte rotanti serie 82 sono state costruite tenendo conto delle particolari condizioni di lavoro sulle dentatrici.
Il taglio interrotto degli utensili a creatore richiede alla contropunta di essere il più rigida possibile (ecco perchè è tutta montata con cuscinetti a rullini). Inoltre non abbiamo bisogno di raggiungere velocità rotazionali elevate.
Altra caratteristica importante di queste contropunte deve essere l'ingombro ridotto del corpo, dato che l'utensile creatore necessita di molto spazio per entrare e uscire totalmente dall'ingranaggio. Per aumentare ulteriormente la rigidità abbiamo costruito l'albero centrale in acciaio da utensili con tempra a cuore.

La manutenzione di queste contropunte risulta molto semplice: basta togliere la vite ① per smontare l'albero che potrà essere sostituito con uno di quelli intercambiabili, oppure revisionato e rimontato sulla contropunta.

Se non trovate nelle contropunte STANDARD quella che vi necessita potete richiedere offerta utilizzando il disegno sotto (DIS.A) da ultimare con vostre misure.
Tutte le contropunte sono lubrificate a grasso.

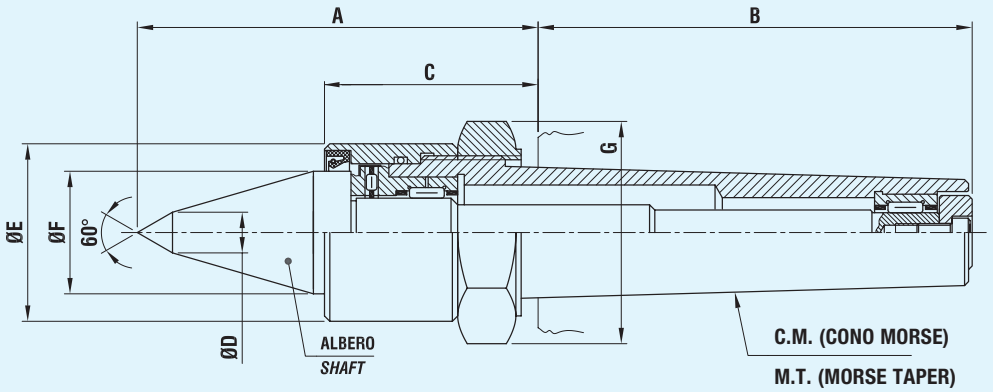
DIS. A



Morse Taper Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)											
	A	*B*		*C*	*L*	*Ø E*		*Ø F*		*G*	
CM3 / *MT3*		84.2	(3.315)			42	(1.654)	29	(1.142)	46	(1.811)
CM4 / *MT4*		102.7	(4.043)			42	(1.654)	29	(1.142)	46	(1.811)
CM5 / *MT5*		129.5	(5.098)			62	(2.441)	45	(1.772)	68	(2.677)

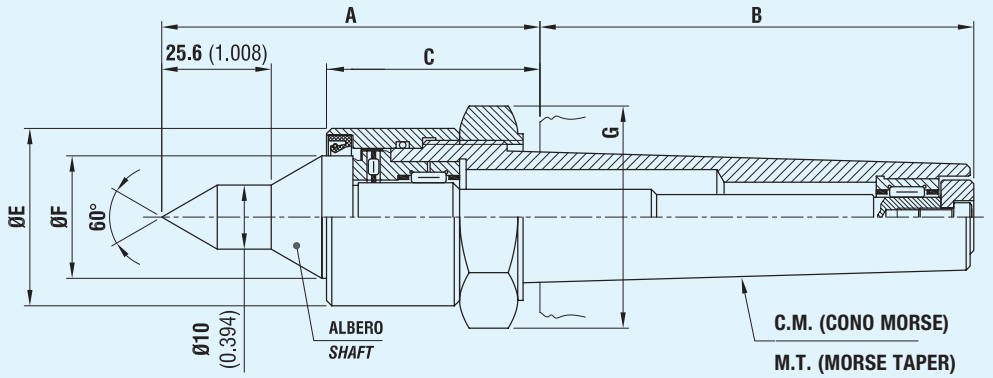
CONTROPUNTE ROTANTI SERIE 82

CONCENTRICITY/CONCENTRICITÁ 0.005



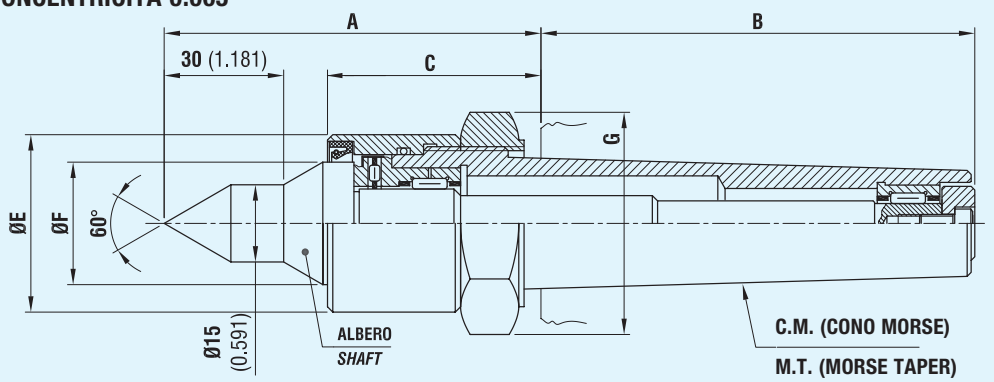
Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)											
		A		*B*		*C*		*Ø D*		*Ø E*		*Ø F*		*G*	
010182036	CM3 / *MT3*	93	(3.661)	84.2	(3.315)	49	(1.929)	12	(0.472)	42	(1.654)	29	(1.142)	46	(1.811)
010182046	CM4 / *MT4*	94.5	(3.720)	102.7	(4.043)	50.5	(1.988)	12	(0.472)	42	(1.654)	29	(1.142)	46	(1.811)
010182056	CM5 / *MT5*	128.5	(5.059)	129.5	(5.098)	57.5	(2.264)	15	(0.591)	62	(2.441)	45	(1.772)	68	(2.677)

CONCENTRICITY/CONCENTRICITÁ 0.005



Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)									
		A		*B*		*C*		*Ø E*		*Ø F*		*G*	
010182034	CM3 / *MT3*	93	(3.661)	84.2	(3.315)	49	(1.929)	42	(1.654)	29	(1.142)	46	(1.811)
010182044	CM4 / *MT4*	94.5	(3.720)	102.7	(4.043)	50.5	(1.988)	42	(1.654)	29	(1.142)	46	(1.811)
010182054	CM5 / *MT5*	115.5	(4.547)	129.5	(5.098)	57.5	(2.264)	62	(2.441)	45	(1.772)	68	(2.677)

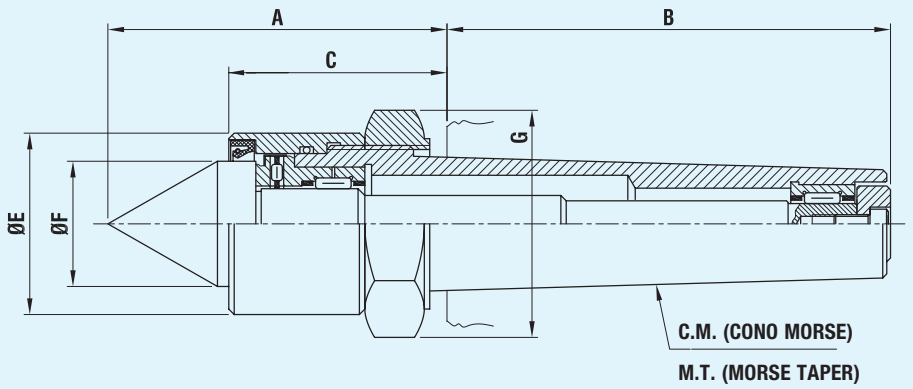
CONCENTRICITY/CONCENTRICITÁ 0.005



Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)											
		A		*B*		*C*		*Ø E*		*Ø F*		*G*	
010182035	CM3 / *MT3*	93	(3.661)	84.2	(3.315)	49	(1.929)	42	(1.654)	29	(1.142)	46	(1.811)
010182045	CM4 / *MT4*	94.5	(3.720)	102.7	(4.043)	50.5	(1.988)	42	(1.654)	29	(1.142)	46	(1.811)
010182055	CM5 / *MT5*	115.5	(4.547)	129.5	(5.098)	57.5	(2.264)	62	(2.441)	45	(1.772)	68	(2.677)

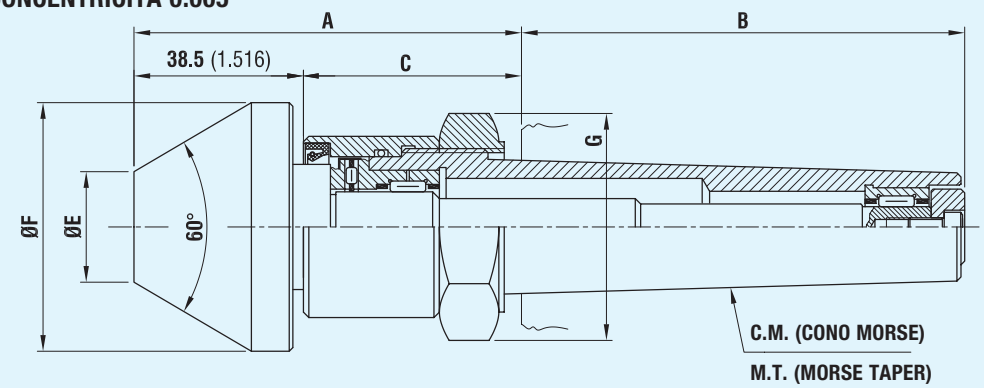
CONTROPUNTE ROTANTI SERIE 82

CONCENTRICITY/CONCENTRICITÁ 0.005

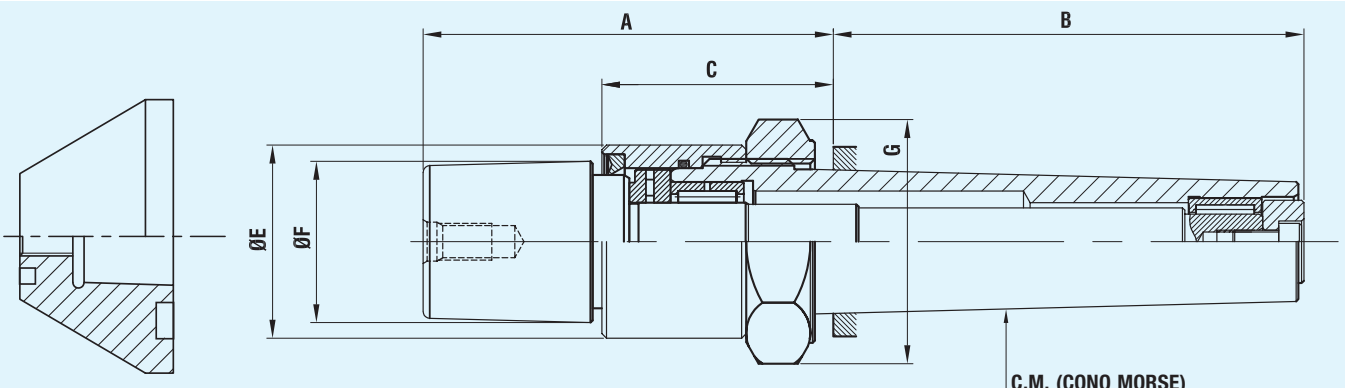


Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
		A	*B*	*C*	*Ø E*	*Ø F*	*G*
010182031	CM3 / *MT3*	77 (3.031)	84.2 (3.315)	49 (1.929)	42 (1.654)	29 (1.142)	46 (1.811)
010182041	CM4 / *MT4*	78.5 (3.091)	102.7 (4.043)	50.5 (1.988)	42 (1.654)	29 (1.142)	46 (1.811)
010182051	CM5 / *MT5*	98.5 (3.878)	129.5 (5.098)	57.5 (2.264)	62 (2.441)	45 (1.772)	68 (2.677)

CONCENTRICITY/CONCENTRICITÁ 0.005



Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
		A	*B*	*C*	*Ø E*	*Ø F*	*G*
010182037	CM3 / *MT3*	87.5 (3.445)	84.2 (3.315)	49 (1.929)	25 (0.984)	58 (2.283)	46 (1.811)
010182047	CM4 / *MT4*	89 (3.504)	102.7 (4.043)	50.5 (1.988)	25 (0.984)	58 (2.283)	46 (1.811)
010182057	CM5 / *MT5*	96 (3.780)	129.5 (5.098)	57.5 (2.264)	35 (1.378)	68 (2.677)	68 (2.677)



See heads on page 15

Per gli anelli conici vedere a pag. 15

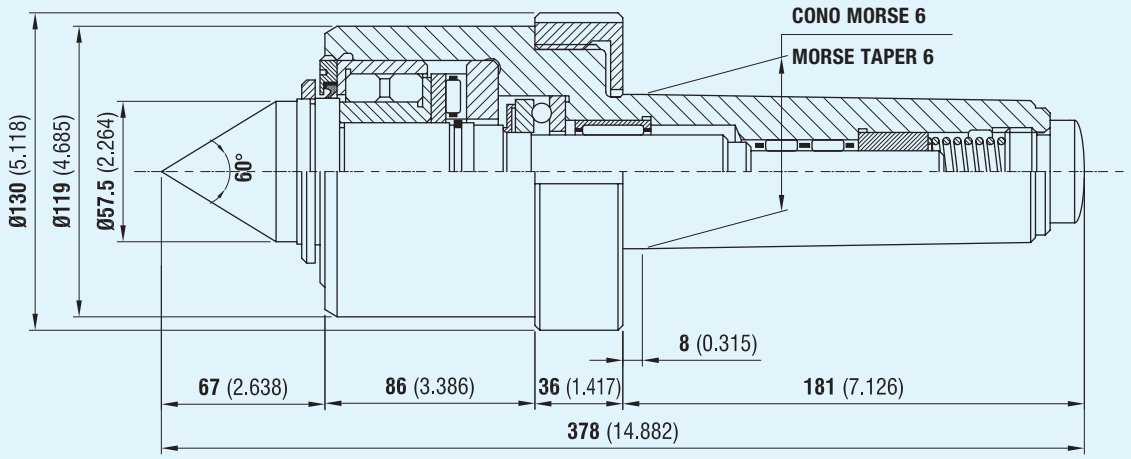
Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
		A	*B*	*C*	*Ø E*	*Ø F*	*G*
010182033	CM3 / *MT3*	88 (3.465)	84.2 (3.315)	49 (1.929)	42 (1.654)	35 (1.378)	46 (1.811)
010182043	CM4 / *MT4*	89.5 (3.524)	102.7 (4.043)	50.5 (1.988)	42 (1.654)	35 (1.378)	46 (1.811)
010182053	CM5 / *MT5*	100.5 (3.957)	129.5 (5.098)	57.5 (2.264)	63 (2.480)	35 (1.378)	68 (2.677)

REINFORCED "FRB" LIVE CENTER MT6 WITH AXIAL LOAD DISTRIBUTION AND INTEGRAL SHAFT FOR TURNING OF SHAFTS

CONTROPUNTA ROTANTE "FRB" RINFORZATA CONO MORSE 6, A CARICO ASSIALE DIFFERENZIATO, E ALBERO INTEGRALE PER TORNITURA DI ALBERI

"86 SERIES"
SERIE 86

CONCENTRICITY/CONCENTRICITÁ 0.010



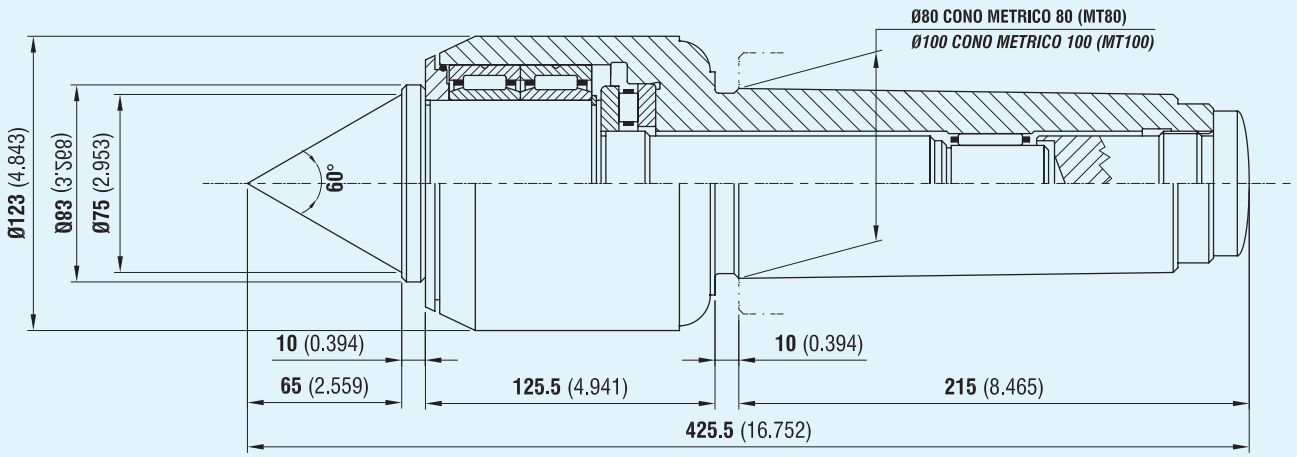
Code Codice	*Morse Taper* Cono Morse	*Max axial load* Carico assiale max. Kg/Lb	*Max radial load (Workpiece weight)* Carico radiale max. (peso pezzo) Kg/Lb	*Max speed* Velocità max giri/min'/r.p.m.
010186161	CM6 / *MT6*	6.000/13.227,51	7.000/15.432.10	1000

"FRB" LIVE CENTER MT80 AND MT100 WITHOUT EXTRACTION NUT, WITH INTEGRAL SHAFT FOR TURNING OF SHAFTS

CONTROPUNTA ROTANTE "FRB" METRICO 80 E METRICO 100 SENZA GHIERA D'ESTRAZIONE, CON ALBERO INTEGRALE PER TORNITURA DI ALBERI

"87 SERIES"
SERIE 87

CONCENTRICITY/CONCENTRICITÁ 0.010

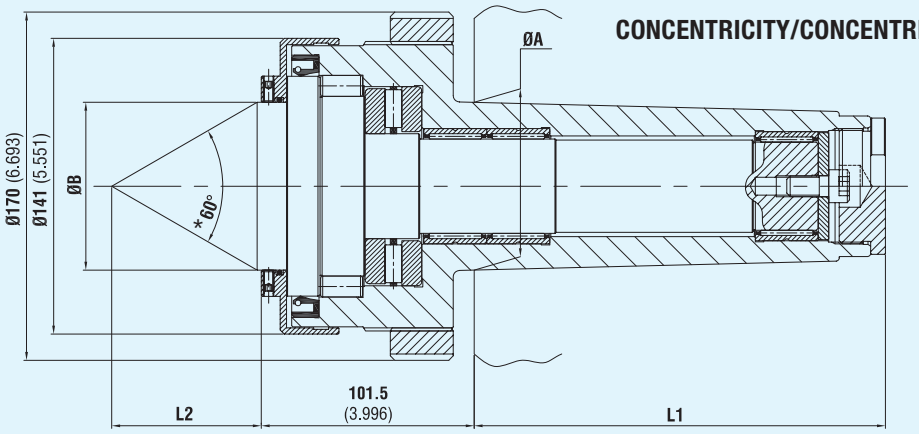


Code Codice	*Morse Taper* Cono Morse	*Max axial load* Carico assiale max. Kg/Lb	*Max radial load (Workpiece weight)* Carico radiale max. (peso pezzo) Kg/Lb	*Max speed* Velocità max giri/min'/r.p.m.
010187161	METRICO 80 / *MT80*	12.000/26.455.03	12.000/26.455,03	800
010187162	METRICO 100 / *MT100*	12.000/26.455.03	12.000/26.455,03	800

"FRB" LIVE CENTER WITH FULL FILLING ROLLERS AND INTEGRAL SHAFT FOR TURNING AND GRINDING OF SHAFTS

CONTROPUNTA ROTANTE "FRB" CON RULLI A PIENO RIEMPIMENTO E ALBERO INTEGRALE PER TORNITURA E RETTIFICA DI ALBERI

"88 SERIES"
SERIE 88



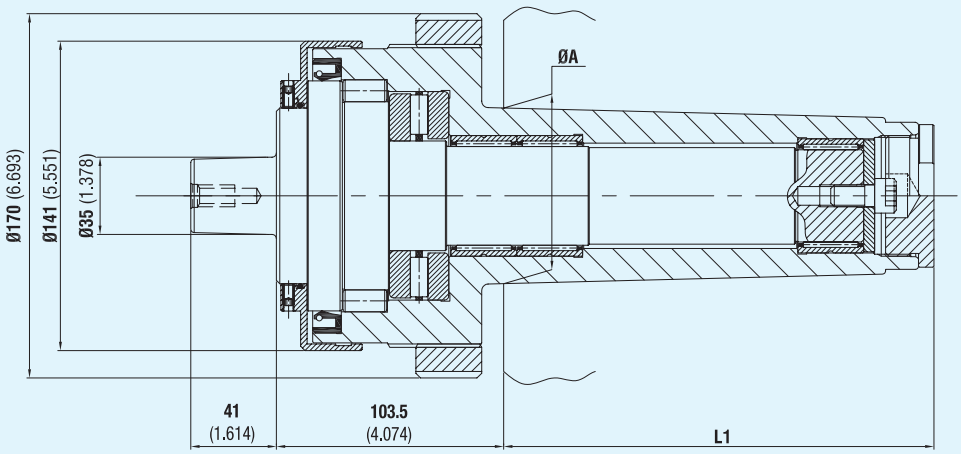
* *on request 75°/90°*
* a richiesta 75°/90°

Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)								*Max axial load* Carico assiale max. Kg/Lb	*Max radial load (Workpiece weight)* Carico radiale max. (peso pezzo) Kg/Lb	*Max speed* Velocità max giri/min'/r.p.m.
		A		*Ø B*		*L1*		*L2*				
010921104	CM6/MT6	63.348	(2.494)	60	(2.362)	185	(7.283)	54	(2.126)	12.000/26,455.03	9.000/19,841.27	500
010921105	CM7/MT7	83.061	(3.270)	80	(3.150)	232	(9.134)	71.3	(2.807)	12.000/26,455.03	16.000/35,273.37	500
010921106	M80/MT80	80	(3.150)	80	(3.150)	196	(7.717)	71.3	(2.807)	12.000/26,455.03	16.000/35,273.37	500
010921107	M100/MT100	100	(3.937)	80	(3.150)	232	(9.134)	71.3	(2.807)	12.000/26,455.03	16.000/35,273.37	500
010921108	M120/MT120	120	(4.724)	80	(3.150)	247	(9.724)	70	(2.756)	12.000/26,455.03	16.000/35,273.37	500
010921109	M160/MT160	*On request* / su richiesta										

"FRB" LIVE CENTER WITH FULL FILLING ROLLERS AND HEAD CARRYING INTEGRAL SHAFT FOR TURNING AND GRINDING OF PIPES

CONTROPUNTA ROTANTE "FRB" CON RULLI A PIENO RIEMPIMENTO E ALBERO INTEGRALE PORTA ANELLI CONICI PER TORNITURA E RETTIFICA DI TUBI

"88 SERIES"
SERIE 88



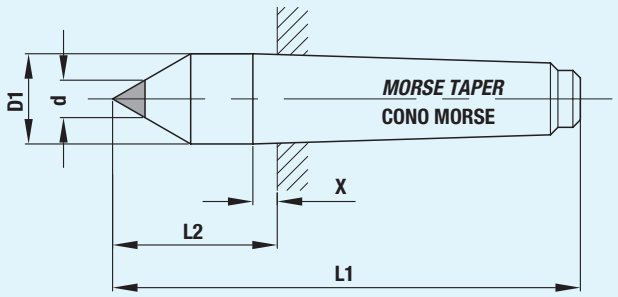
Code Codice	*Morse Taper* Cono Morse	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)				*Max axial load* Carico assiale max. Kg/Lb	*Max radial load (Workpiece weight)* Carico radiale max. (peso pezzo) Kg/Lb	*Max speed* Velocità max giri/min'/r.p.m.
		A		*L1*				
010922104	CM6/MT6	63.348	(2.494)	185	(7.283)	12.000/26,455.03	9.000/19,841.27	500
010922105	CM7/MT7	83.061	(3.270)	232	(9.134)	12.000/26,455.03	16.000/35,273.37	500
010922106	M80/MT80	80	(3.150)	196	(7.717)	12.000/26,455.03	16.000/35,273.37	500
010922107	M100/MT100	100	(3.937)	232	(9.134)	12.000/26,455.03	16.000/35,273.37	500
010922108	M120/MT120	120	(4.724)	247	(9.724)	12.000/26,455.03	16.000/35,273.37	500

See heads on page 15

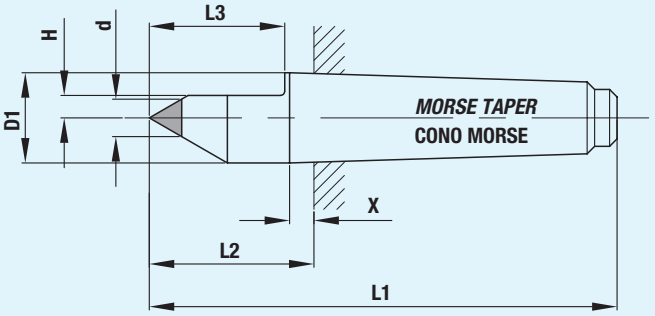
Per gli anelli conici vedere a pag. 15

NORMAL DEAD CENTERS WITH A 60° POINT IN HARD METAL

CONTROPUNTE FISSE NORMALI CON CUSPIDE IN METALLO DURO A 60°



Type "N" (Normal)
Tipo "N" (Normale)



Type "N.S." (Normal-Lowered)
Tipo "N.S." (Normale-scaricata)

Code Codice	*Type* Tipo	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
		M.T. C.M.	d	D_1	L_1	L_2	X
191901061	N	1	6 (0.236)	12.2 (0.480)	80 (3.150)	26.5 (1.043)	3.5 (0.138)
191901081	N	1	8 (0.315)	12.2 (0.480)	80 (3.150)	26.5 (1.043)	3.5 (0.138)
191901101	N	1	10 (0.394)	12.2 (0.480)	80 (3.150)	26.5 (1.043)	3.5 (0.138)
191901062	N	2	6 (0.236)	18 (0.709)	100 (3.937)	36 (1.417)	5 (0.197)
191901082	N	2	8 (0.315)	18 (0.709)	100 (3.937)	36 (1.417)	5 (0.197)
191901102	N	2	10 (0.394)	18 (0.709)	100 (3.937)	36 (1.417)	5 (0.197)
191901142	N	2	14 (0.551)	18 (0.709)	100 (3.937)	36 (1.417)	5 (0.197)
191901182	N	2	18 (0.709)	18 (0.709)	100 (3.937)	36 (1.417)	5 (0.197)
191901063	N	3	6 (0.236)	24.1 (0.949)	125 (4.921)	44 (1.732)	5 (0.197)
191901083	N	3	8 (0.315)	24.1 (0.949)	125 (4.921)	44 (1.732)	5 (0.197)
191901103	N	3	10 (0.394)	24.1 (0.949)	125 (4.921)	44 (1.732)	5 (0.197)
191901143	N	3	14 (0.551)	24.1 (0.949)	125 (4.921)	44 (1.732)	5 (0.197)
191901183	N	3	18 (0.709)	24.1 (0.949)	125 (4.921)	44 (1.732)	5 (0.197)
191901233	N	3	23 (0.906)	24.1 (0.949)	125 (4.921)	44 (1.732)	5 (0.197)
191901064	N	4	6 (0.236)	31.6 (1.244)	160 (6.299)	57.5 (2.264)	6.5 (0.256)
191901084	N	4	8 (0.315)	31.6 (1.244)	160 (6.299)	57.5 (2.264)	6.5 (0.256)
191901104	N	4	10 (0.394)	31.6 (1.244)	160 (6.299)	57.5 (2.264)	6.5 (0.256)
191901144	N	4	14 (0.551)	31.6 (1.244)	160 (6.299)	57.5 (2.264)	6.5 (0.256)
191901184	N	4	18 (0.709)	31.6 (1.244)	160 (6.299)	57.5 (2.264)	6.5 (0.256)
191901234	N	4	23 (0.906)	31.6 (1.244)	160 (6.299)	57.5 (2.264)	6.5 (0.256)
191901304	N	4	30 (1.181)	31.6 (1.244)	160 (6.299)	57.5 (2.264)	6.5 (0.256)
191901125	N	5	12 (0.472)	44.7 (1.760)	200 (7.874)	70.5 (2.776)	6.5 (0.256)
191901165	N	5	16 (0.630)	44.7 (1.760)	200 (7.874)	70.5 (2.776)	6.5 (0.256)
191901205	N	5	20 (0.787)	44.7 (1.760)	200 (7.874)	70.5 (2.776)	6.5 (0.256)
191901265	N	5	26 (1.024)	44.7 (1.760)	200 (7.874)	70.5 (2.776)	6.5 (0.256)
191901305	N	5	30 (1.181)	44.7 (1.760)	200 (7.874)	70.5 (2.776)	6.5 (0.256)

Code Codice	*Type* Tipo	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)				
		M.T. C.M.	d	H	L_3	X
191902061	N.S.	1	6 (0.236)	4 (0.157)	20 (0.787)	3.5 (0.138)
191902062	N.S.	2	6 (0.236)	4 (0.157)	29 (1.142)	5 (0.197)
191902082	N.S.	2	8 (0.315)	5 (0.197)	29 (1.142)	5 (0.197)
191902122	N.S.	2	12 (0.472)	7 (0.276)	29 (1.142)	5 (0.197)
191902063	N.S.	3	6 (0.236)	4 (0.157)	37 (1.457)	5 (0.197)
191902083	N.S.	3	8 (0.315)	5 (0.197)	37 (1.457)	5 (0.197)
191902103	N.S.	3	10 (0.394)	6 (0.236)	37 (1.457)	5 (0.197)
191902143	N.S.	3	14 (0.551)	8 (0.315)	37 (1.457)	5 (0.197)
191902064	N.S.	4	6 (0.236)	4 (0.157)	48 (1.890)	6.5 (0.256)
191902084	N.S.	4	8 (0.315)	5 (0.197)	48 (1.890)	6.5 (0.256)
191902124	N.S.	4	12 (0.472)	7 (0.276)	48 (1.890)	6.5 (0.256)
191902164	N.S.	4	16 (0.630)	9 (0.354)	48 (1.890)	6.5 (0.256)
191902204	N.S.	4	20 (0.787)	12 (0.472)	48 (1.890)	6.5 (0.256)
191902105	N.S.	5	10 (0.394)	6 (0.236)	60 (2.362)	6.5 (0.256)
191902145	N.S.	5	14 (0.551)	8 (0.315)	60 (2.362)	6.5 (0.256)
191902185	N.S.	5	18 (0.709)	10 (0.394)	60 (2.362)	6.5 (0.256)
191902235	N.S.	5	23 (0.906)	12.5 (0.492)	60 (2.362)	6.5 (0.256)
191902305	N.S.	5	30 (1.181)	16 (0.630)	60 (2.362)	6.5 (0.256)

You can find absent dimensions on left side table for type "N".
Le quote mancanti sono riportate nella tabella a fianco nel tipo "N".

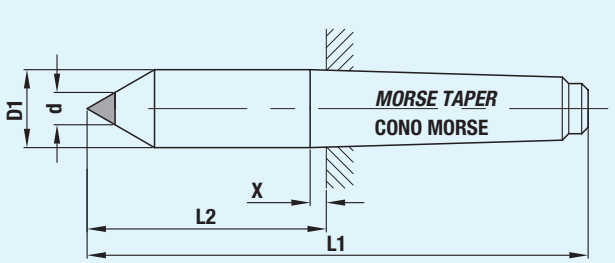
WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

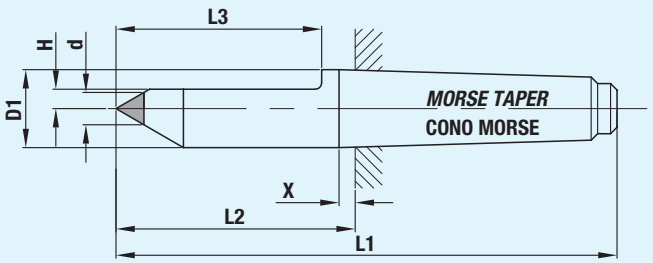
On request we can manufacture special dead centers as per your drawing with every kind of special taper and connection
A richiesta possiamo realizzare punte fisse speciali, a vostro disegno, con qualsiasi tipo di cono e attacco speciale

EXTENDED DEAD CENTERS WITH A 60° POINT IN HARD METAL

CONTROPUNTE PROLUNGATE CON CUSPIDE IN METALLO DURO A 60°



Type "P" (Extended)
Tipo "P" (Prolungata)



Type "P.S." (Extended-Lowered)
Tipo "P.S." (Prolungata-scaricata)

Code Codice	*Type* Tipo	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)					
		M.T. C.M.	d	D_1	L_1	L_2	X
191903061	P	1	6 (0.236)	12.2 (0.480)	100 (3.937)	46.5 (1.831)	3.5 (0.138)
191903081	P	1	8 (0.315)	12.2 (0.480)	100 (3.937)	46.5 (1.831)	3.5 (0.138)
191903101	P	1	10 (0.394)	12.2 (0.480)	100 (3.937)	46.5 (1.831)	3.5 (0.138)
191903062	P	2	6 (0.236)	18 (0.709)	120 (4.724)	56 (2.205)	5 (0.197)
191903082	P	2	8 (0.315)	18 (0.709)	120 (4.724)	56 (2.205)	5 (0.197)
191903102	P	2	10 (0.394)	18 (0.709)	120 (4.724)	56 (2.205)	5 (0.197)
191903142	P	2	14 (0.551)	18 (0.709)	120 (4.724)	56 (2.205)	5 (0.197)
191903182	P	2	18 (0.709)	18 (0.709)	120 (4.724)	56 (2.205)	5 (0.197)
191903063	P	3	6 (0.236)	24.1 (0.949)	155 (6.102)	74 (2.913)	5 (0.197)
191903083	P	3	8 (0.315)	24.1 (0.949)	155 (6.102)	74 (2.913)	5 (0.197)
191903103	P	3	10 (0.394)	24.1 (0.949)	155 (6.102)	74 (2.913)	5 (0.197)
191903143	P	3	14 (0.551)	24.1 (0.949)	155 (6.102)	74 (2.913)	5 (0.197)
191903183	P	3	18 (0.709)	24.1 (0.949)	155 (6.102)	74 (2.913)	5 (0.197)
191903233	P	3	23 (0.906)	24.1 (0.949)	155 (6.102)	74 (2.913)	5 (0.197)
191903064	P	4	6 (0.236)	31.6 (1.244)	195 (7.677)	92.5 (3.642)	6.5 (0.256)
191903084	P	4	8 (0.315)	31.6 (1.244)	195 (7.677)	92.5 (3.642)	6.5 (0.256)
191903104	P	4	10 (0.394)	31.6 (1.244)	195 (7.677)	92.5 (3.642)	6.5 (0.256)
191903144	P	4	14 (0.551)	31.6 (1.244)	195 (7.677)	92.5 (3.642)	6.5 (0.256)
191903184	P	4	18 (0.709)	31.6 (1.244)	195 (7.677)	92.5 (3.642)	6.5 (0.256)
191903234	P	4	23 (0.906)	31.6 (1.244)	195 (7.677)	92.5 (3.642)	6.5 (0.256)
191903304	P	4	30 (1.181)	31.6 (1.244)	195 (7.677)	92.5 (3.642)	6.5 (0.256)
191903125	P	5	12 (0.472)	44.7 (1.760)	240 (9.449)	110.5 (4.350)	6.5 (0.256)
191903165	P	5	16 (0.630)	44.7 (1.760)	240 (9.449)	110.5 (4.350)	6.5 (0.256)
191903205	P	5	20 (0.787)	44.7 (1.760)	240 (9.449)	110.5 (4.350)	6.5 (0.256)
191903265	P	5	26 (1.024)	44.7 (1.760)	240 (9.449)	110.5 (4.350)	6.5 (0.256)
191903305	P	5	30 (1.181)	44.7 (1.760)	240 (9.449)	110.5 (4.350)	6.5 (0.256)

Code Codice	*Type* Tipo	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)				
		M.T. C.M.	d	H	L_3	X
191904061	P.S.	1	6 (0.236)	4 (0.157)	40 (1.575)	3.5 (0.138)
191904062	P.S.	2	6 (0.236)	4 (0.157)	49 (1.929)	5 (0.197)
191904082	P.S.	2	8 (0.315)	5 (0.197)	49 (1.929)	5 (0.197)
191904122	P.S.	2	12 (0.472)	7 (0.276)	49 (1.929)	5 (0.197)
191904063	P.S.	3	6 (0.236)	4 (0.157)	67 (2.638)	5 (0.197)
191904083	P.S.	3	8 (0.315)	5 (0.197)	67 (2.638)	5 (0.197)
191904103	P.S.	3	10 (0.394)	6 (0.236)	67 (2.638)	5 (0.197)
191904143	P.S.	3	14 (0.551)	8 (0.315)	67 (2.638)	5 (0.197)
191904064	P.S.	4	6 (0.236)	4 (0.157)	83 (3.268)	6.5 (0.256)
191904084	P.S.	4	8 (0.315)	5 (0.197)	83 (3.268)	6.5 (0.256)
191904124	P.S.	4	12 (0.472)	7 (0.276)	83 (3.268)	6.5 (0.256)
191904164	P.S.	4	16 (0.630)	9 (0.354)	83 (3.268)	6.5 (0.256)
191904204	P.S.	4	20 (0.787)	12 (0.472)	83 (3.268)	6.5 (0.256)
191904105	P.S.	5	10 (0.394)	6 (0.236)	100(3.937)	6.5 (0.256)
191904145	P.S.	5	14 (0.551)	8 (0.315)	100(3.937)	6.5 (0.256)
191904185	P.S.	5	18 (0.709)	10 (0.394)	100(3.937)	6.5 (0.256)
191904235	P.S.	5	23 (0.906)	12.5(0.492)	100(3.937)	6.5 (0.256)
191904305	P.S.	5	30 (1.181)	16 (0.630)	100(3.937)	6.5 (0.256)

You can find absent dimensions on left side table for type "P".
Le quote mancanti sono riportate nella tabella a fianco nel tipo "P".

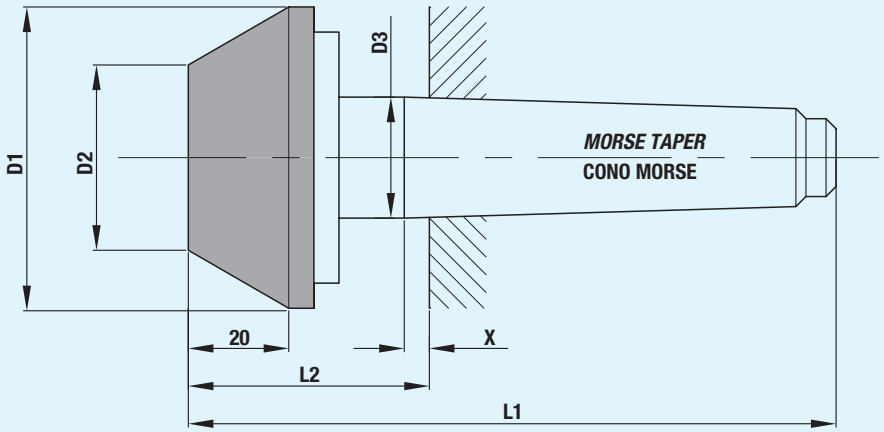
WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

On request we can manufacture special dead centers as per your drawing with every kind of special taper and connection
A richiesta possiamo realizzare punte fisse speciali, a vostro disegno, con qualsiasi tipo di cono e attacco speciale

DEAD CENTERS WITH A 60° HEAD IN HARD METAL

CONTROPUNTE FISSE CON ANELLO CONICO A 60° IN METALLO DURO



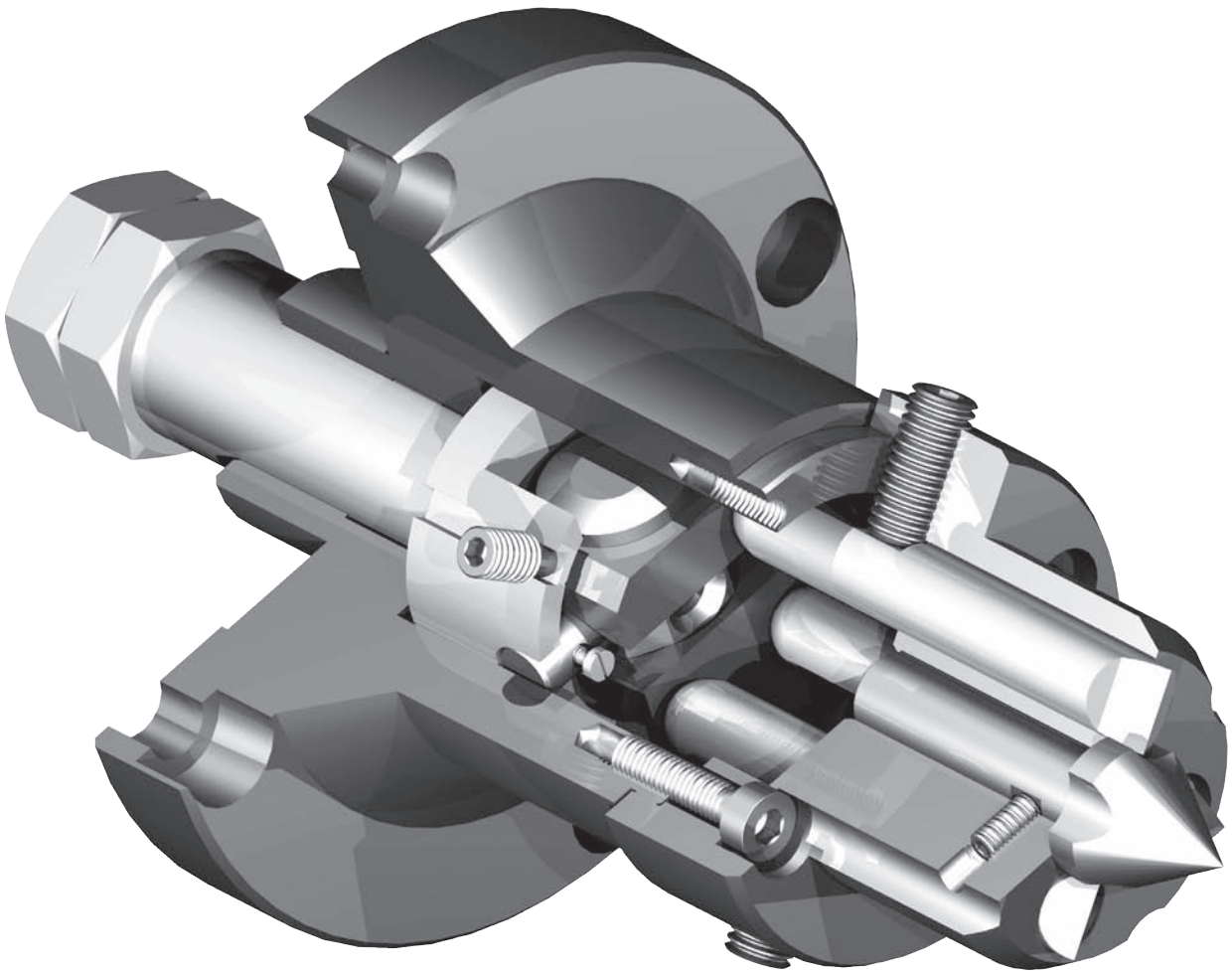
Code Codice	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)						
	M.T. C.M.	D_1	D_2	D_3	L_1	L_2	X
202030072	2	30 (1.181)	7 (0.276)	18 (0.709)	112 (4.409)	48 (1.890)	5 (0.197)
202035122	2	35 (1.378)	12 (0.472)	18 (0.709)	112 (4.409)	48 (1.890)	5 (0.197)
202040172	2	40 (1.575)	17 (0.669)	18 (0.709)	112 (4.409)	48 (1.890)	5 (0.197)
202045222	2	45 (1.772)	22 (0.866)	18 (0.709)	112 (4.409)	48 (1.890)	5 (0.197)
202050272	2	50 (1.969)	27 (1.063)	18 (0.709)	112 (4.409)	48 (1.890)	5 (0.197)
202030073	3	30 (1.181)	7 (0.276)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202035123	3	35 (1.378)	12 (0.472)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202040173	3	40 (1.575)	17 (0.669)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202045223	3	45 (1.772)	22 (0.866)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202050273	3	50 (1.969)	27 (1.063)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202055323	3	55 (2.165)	32 (1.260)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202060373	3	60 (2.362)	37 (1.457)	24.1 (0.949)	129 (5.079)	48 1.890)	5 (0.197)
202065423	3	65 (2.559)	42 (1.654)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202070473	3	70 (2.756)	47 (1.850)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202075523	3	75 (2.953)	52 (2.047)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202080573	3	80 (3.150)	57 (2.244)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202085623	3	85 (3.346)	62 (2.441)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202090673	3	90 (3.543)	67 (2.638)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202095723	3	95 (3.740)	72 (2.835)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202000773	3	100 (3.937)	77 (3.031)	24.1 (0.949)	129 (5.079)	48 (1.890)	5 (0.197)
202030074	4	30 (1.181)	7 (0.276)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202035124	4	35 (1.378)	12 (0.472)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202040174	4	40 (1.575)	17 (0.669)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202045224	4	45 (1.772)	22 (0.866)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202050274	4	50 (1.969)	27 (1.063)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202055324	4	55 (2.165)	32 (1.260)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202060374	4	60 (2.362)	37 (1.457)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202065424	4	65 (2.559)	42 (1.654)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202070474	4	70 (2.756)	47 (1.850)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202075524	4	75 (2.953)	52 (2.047)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202080574	4	80 (3.150)	57 (2.244)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202085624	4	85 (3.346)	62 (2.441)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202090674	4	90 (3.543)	67 (2.638)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)

Code Codice	*Dimensions in mm (inch)* / Dimensioni in mm (pollici)						
	M.T. C.M.	D_1	D_2	D_3	L_1	L_2	X
202095724	4	95 (3.740)	72 (2.835)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202000774	4	100 (3.937)	77 (3.031)	31.6 (1.244)	162 (6.378)	60 (2.362)	6.5 (0.256)
202030075	5	30 (1.181)	7 (0.276)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202035125	5	35 (1.378)	12 (0.472)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202040175	5	40 (1.575)	17 (0.669)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202045225	5	45 (1.772)	22 (0.866)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202050275	5	50 (1.969)	27 (1.063)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202055325	5	55 (2.165)	32 (1.260)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202060375	5	60 (2.362)	37 (1.457)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202065425	5	65 (2.559)	42 (1.654)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202070475	5	70 (2.756)	47 (1.850)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202075525	5	75 (2.953)	52 (2.047)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202080575	5	80 (3.150)	57 (2.244)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202085625	5	85 (3.346)	62 (2.441)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202090675	5	90 (3.543)	67 (2.638)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202095725	5	95 (3.740)	72 (2.835)	44.7 (1.760)	200 (7.874)	70 (2.756)	6.5 (0.256)
202000775	5	100 (3.937)	77 (3.031)	44.7 (1.760)	200 (7.874)	70 (2.756	6.5 (0.256)

On request we can manufacture special dead centers as per your drawing with every kind of special taper and connection

A richiesta possiamo realizzare punte fisse speciali, a vostro disegno, con qualsiasi tipo di cono e attacco speciale

PATENTED FACE DRIVERS
TRASCINATORI BREVETTATI



FACE DRIVER WITH 4 INDIPENDENTS DRIVING PINS.... A UNIQUE SYSTEM ALL OVER THE WORLD!

TRASCINATORI A 4 ARTIGLI COMPLETAMENTE INDIPENDENTI.... UN SISTEMA UNICO AL MONDO!

TECHNICAL FEATURES OF F.R.B. FACE DRIVERS FOR CENTERED SHAFTS

CARATTERISTICHE TECNICHE DEL TRASCINATORE F.R.B. PER ALBERI CENTRATI

F.R.B. face drivers work by a patented compensating system, operated by wedge lever, which allows four-pin driving. This system is highly adjustable and ensures safe and reliable torque transmission under the most difficult conditions; such as rough surfaces or obliqueness of end faces by as much as 3 mm in relation to the rotation axis.

The center is independent of the driving pins and rests against a belleville spring washer assembly lodged inside the Morse taper. Even with varying center sizes, work positioning is maintained with optimal repeatability.

The center point can be easily removed. There is no need to remove the face driver from the machine tool. The interchangeability of centers with slots enables turning even of workpieces with holes in the end piece.

The superior driving efficiency of the F.R.B. face drivers means that the full state-of-the-art performance of even the most advanced machine tools can be fully exploited.

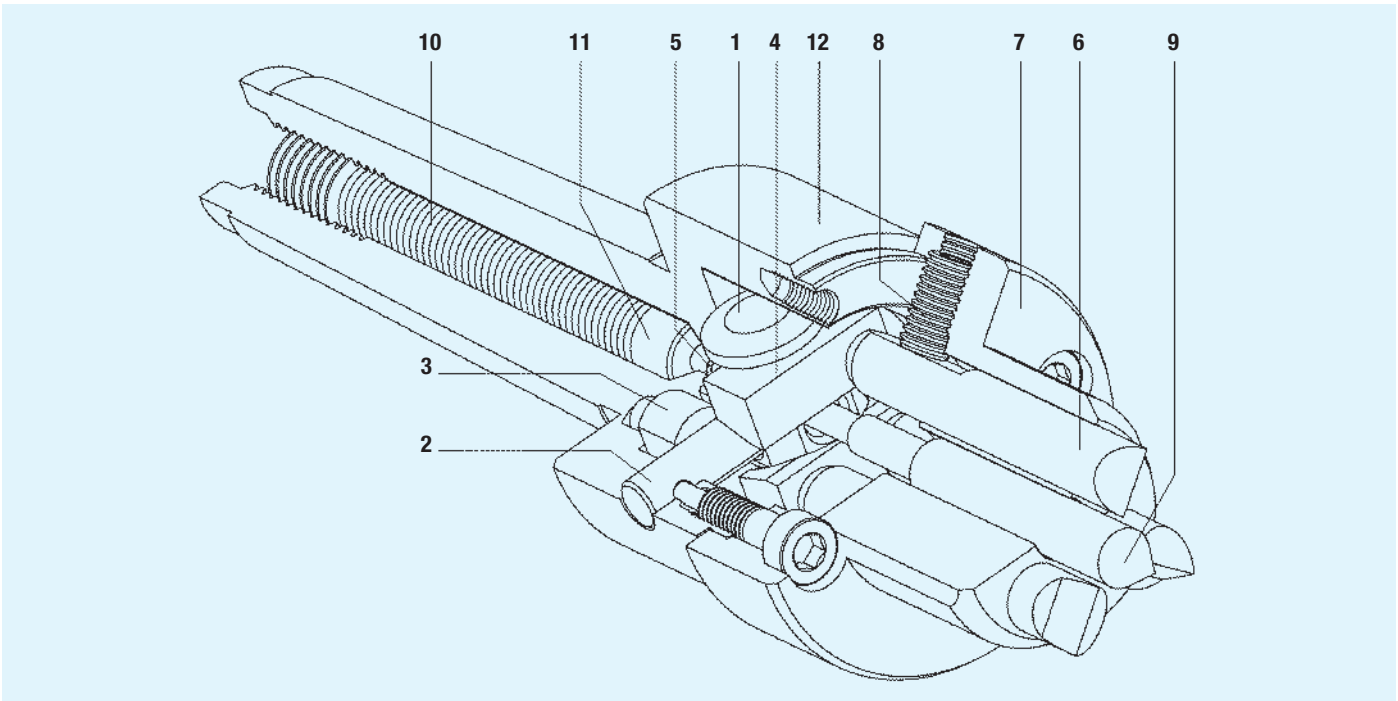
Important: for cutting parameters, always contact our technical department (phone: 051/846760). **E-mail: info@tecnologiefrb.com**

I trascinatori frontali F.R.B. sono coperti da brevetto per il sistema di compensazione a bilancino, che permette il trascinamento mediante quattro artigli.

Questo sistema è sensibilissimo e garantisce, anche nelle condizioni di lavoro più gravose, la massima efficacia di trascinamento anche su superfici grezze e con errore di ortogonalità rispetto all'asse di rotazione fino a 3 mm.

La punta centrale dei trascinatori è indipendente dagli artigli e poggia su un pacco di molle a tazza contenute all'interno del cono di fissaggio (Cono Morse) pertanto variando la grandezza dei centri, lo spallamento sui pezzi non cambia rispetto al piano di testa. Inoltre la punta centrale è estraibile sfilandola semplicemente dalla sua sede senza smontare il trascinatore; questo permette l'intercambiabilità delle punte a capruggine per tornire anche pezzi con foro. Il traino veramente incredibile di questo trascinatore, permette di lavorare senza condizionare le prestazioni anche delle macchine utensili più avanzate.

N.B.: per i parametri di taglio consultare sempre il nostro ufficio tecnico (tel. 051/846760). E-mail: info@tecnologiefrb.com



*All **F.R.B.** face drivers use a wedge lever compensating system.*
The driver consists of these components:

1) *Wedge lever assembly*
2) *Wedge lever support pin*
3) *Support pin base*
4) *Balancing plates*
5) *Anchor*
6) *Driving pins*
7) *Driving pins support washer*
8) *Driving pins retaining screw*
9) *Center point*
10) *Belleville spring washer assembly*
11) *Center point support cylinder*
12) *Face driver body*

Tutti i trascinatori **F.R.B.** sfruttano, per compensare gli artigli di trascinamento, il sistema "a bilancino". Il trascinatore è composto dai seguenti particolari:

1) Corpo bilancino
2) Perno di supporto bilancino
3) Base supporto perno
4) Piastrina basculante
5) Ancora
6) Artigli di trascinamento
7) Testina porta artigli di trascinamento
8) Grano ferma artigli di trascinamento
9) Punta centrale
10) Molle a tazza
11) Cilindretto di appoggio punta centrale
12) Corpo trascinatore

HOW THE "WEDGE LEVER" SYSTEM WORKS

PRINCIPIO DI FUNZIONAMENTO DEL SISTEMA "A BILANCINO"

The wedge lever ① is held in position by two support pins ② that are themselves supported by two auxiliary supports ③. These reduce pin deflection. The wedge lever assembly has two balancing plates ④ that are held in position by two elastic elements called "anchors" ⑤. These are fixed to the bottom of the balancing plates.

The four driving pins ⑥ are guided by the driving pin support washer ⑦. Rotation play is eliminated by the driving pins retaining screw ⑧ : the driving pins rest their rounded end on the wedge lever's balancing plates.

The wedge lever has been specially designed to compensate any obliqueness of end faces on which the driving pins rest. They are made from specially vanadium steel and higly tensile, hardened molybdenum.

The driving pins are of two types: one for each rotation direction of the spindle.

The center ⑨ is independent of the driving pins and is loaded by the belleville springs ⑩. Spring thrust is adjustable by the grub screw at the back of the face driver, inside the cone.

To machine workpieces with holes or large centres, point with slots can be fitted. For operating instuctions, see pag. 37.

Lowered driving pins can be fitted to all models in order to machine from the face driver side diameters that are too thin to be turned by standard size driving pins.

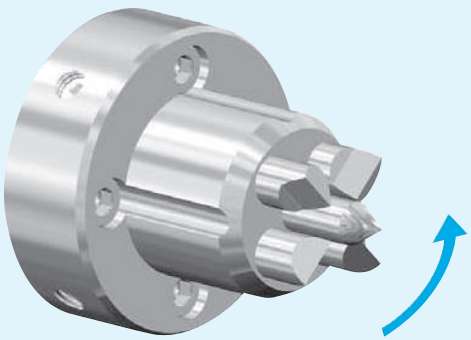
Il corpo del bilancino ① viene tenuto in posizione da due perni di sostegno ② sostenuti a loro volta da due appoggi ausiliari ③ che hanno la funzione di ridurre le flessioni dei perni. Sul corpo del bilancino sono poste due piastrine basculanti ④, tenute in posizione sul corpo del bilancino da due elementi elastici detti "ancore" ⑤ che vengono fissati nella parte sottostante delle piastrine stesse.

I 4 artigli di trascinamento ⑥ sono guidati dalla testina porta artigli ⑦, ed il loro gioco di rotazione è eliminato dal grano ferma artigli ⑧; questi appoggiano con la loro estremità arrotondata sulle piastrine basculanti del bilancino che è costruito in modo da poter compensare errori di ortogonalità della superficie su cui fanno presa gli artigli stessi. Il materiale con cui sono realizzati è un acciaio speciale al Vanadio e Molibdeno con elevata tenacità e durezza; inoltre gli artigli si suddividono in due tipi, che corrispondono ai due sensi di rotazione dell'albero mandrino.

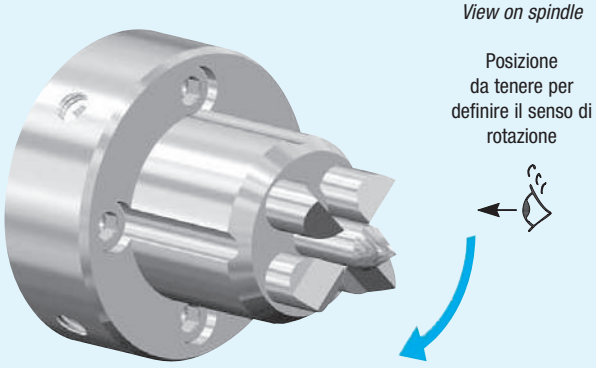
La punta centrale ⑨ è indipendente dagli artigli di trascinamento, ed è caricata mediante delle molle a tazza ⑩ la cui spinta può essere regolata agendo sul grano avvitato nella parte posteriore del trascinatore, all'interno del cono.

Per lavorare dei pezzi forati o con centri grandi, possono essere montate le punte a capruggine, le cui modalità d'impiego sono indicate a pag. 37.

Su tutti i modelli possono essere montati anche degli artigli ribassati per lavorare dal lato del trascinatore diametri inferiori a quelli che si possono tornire con gli artigli di serie.



left rotation
antiorario



right rotation
orario

F.R.B. FACE DRIVER

Enables the operator to change the driving pins and the center point without having to remove other face driver components. It also enables long execution machining by even large tools.

TRASCINATORE FRONTALE F.R.B.

Dà la possibilità all'operatore di sostituire con estrema rapidità gli artigli di trascinamento e la punta centrale senza smontare altre parti del trascinatore; inoltre permette di lavorare sottotesta anche con utensili ingombranti.

INSTRUCTIONS FOR A CORRECT MAINTENANCE OF THE FACE DRIVER FUNCTIONAL FEATURES

ISTRUZIONI PER IL CORRETTO MANTENIMENTO DELLE CARATTERISTICHE FUNZIONALI DEL TRASCINATORE

A) *Insert driving pins by hand ① and make them slide in direction of the face driver's axis, keeping the milled plane turned outwards.*

B) *The radial screws of the washer ② block the driving pins; just a rotation of 2/3 tenth of millimeter around its own axis is permitted to make possible an adjustment (by sliding) of the driving pins against the surface of the workpiece also in case of defects or burr. Four radial screws have been registered during assembling and don't have to be touched anymore.*

C) *Every about 400 working hours we suggest to extract the central point ③ and the driving pins to regrease them in order to create a thin film that avoids introductions of emulsifiable water into the body of the face driver.*

D) *The belleville spring washers ④ are fitted the opposite way and compressed by the screw ⑤ that don't have to be touched.*

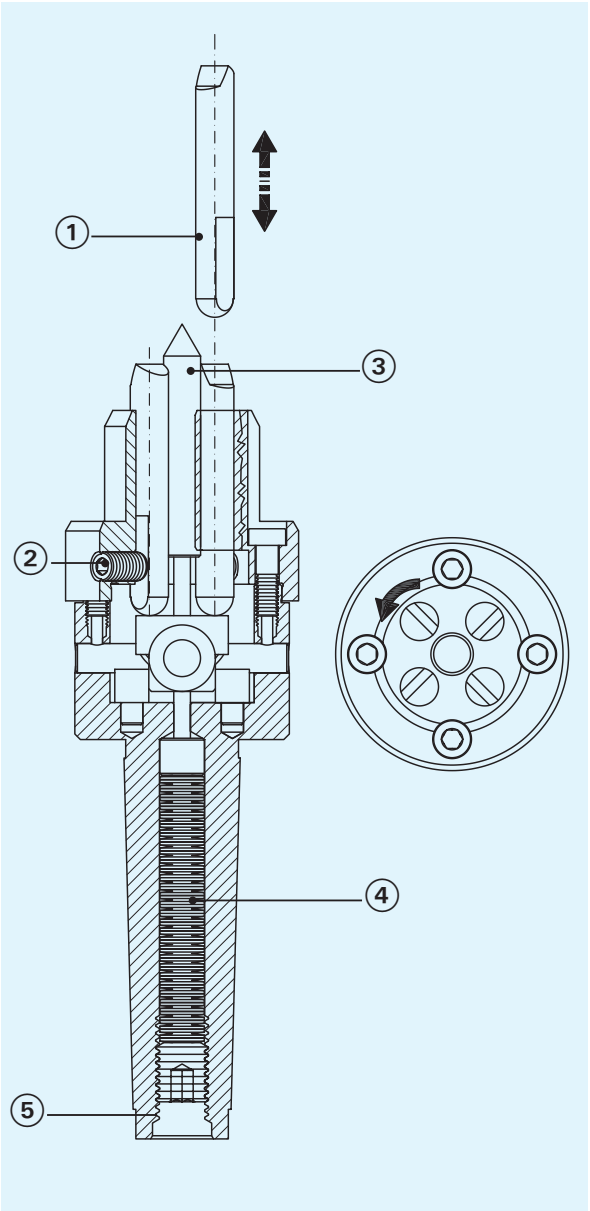
A) Introdurre gli artigli manualmente ① facendoli scorrere in direzione dell'asse del trascinatore e mantenendo il piano fresato rivolto verso l'esterno.

B) I grani radiali presenti nella testina ② hanno la funzione di antirotazione dell'artiglio; allo stesso modo però devono permettere all'artiglio una rotazione attorno al proprio asse di circa 2/3 decimi di millimetro al fine di potersi assestare in seguito alla presenza di eventuali imperfezioni o bave sulla faccia del pezzo da trascinare. I 4 grani radiali, essendo stati registrati in fase di montaggio, non devono essere più toccati.

C) Consigliamo, ogni 400 ore di lavorazione circa, di procedere all'estrazione dei 4 artigli e della punta centrale ③ per ingrassarli, così da creare una sottile pellicola tale da impedire all'acqua emulsionata d'introdursi all'interno del corpo trascinatore.

D) Le molle a tazza ④ sono montate contrapposte e precaricate dalla vite ⑤, la quale non deve essere toccata.

P.S.: *All above mentioned operations, except for point D, can be made with the face driver assembled on the machine without compromising its accuracy.*



N.B. *Tutte le operazioni sopra citate. ad esclusione del punto D, possono essere effettuate con il trascinatore già montato in macchina, senza pregiudicare la precisione dello stesso.*

USING THE CENTER POINTS WITH SLOTS IN FACE DRIVERS OPERATED BY SPRINGS

MODALITÀ D'IMPIEGO DELLA PUNTA A "CAPRUGGINE" NEI TRASCINATORI MOLLEGGIATI

USING:

When using the center points with slots, always check driving pin lenght. This must never be less than 3 mm of the lenght indicated in the catalogue.

This means that when sharpening, they can be shortened only by 3 mm (E) of their original lenght.

To ensure that the point with slots operates efficiently, care must be taken to ensure that it never comes into contact with level (K) of the point support washer.

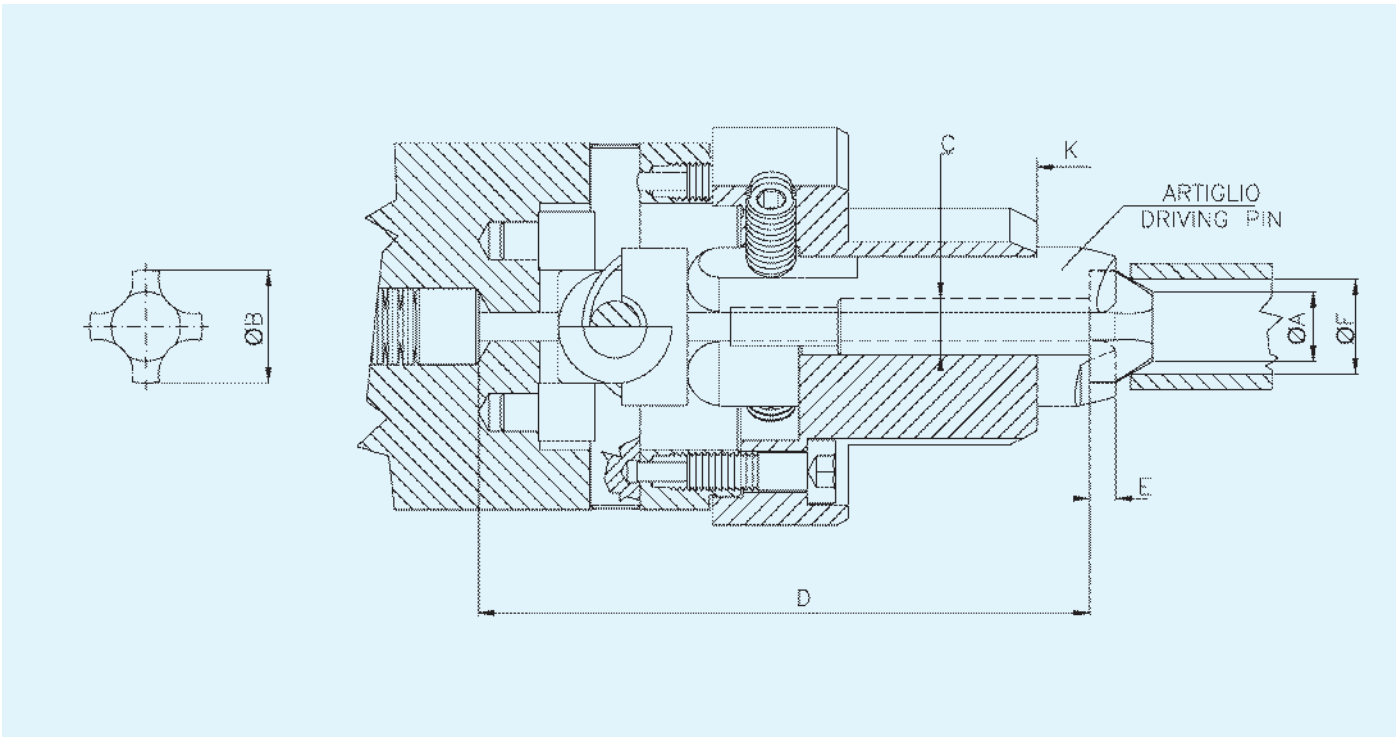
The dimension of the center point with slots has to be chosen considering the dimension "F" (see tables on reference pages).

MODALITÀ:

Quando si usano le punte a capruggine, bisogna controllare sempre la lunghezza degli artigli di trascinamento, la quale non deve mai essere inferiore di 3 mm alla misura originale indicata in catalogo. Questo vale a dire che gli artigli di trascinamento si possono affilare accorciandoli fino ad un massimo di 3 mm (E) rispetto alla loro lunghezza originale.

Per un corretto funzionamento della punta a capruggine, è necessario che questa, quando è sotto carico, non sia mai in battuta contro il piano (K) della testina porta artigli.

La dimensione della capruggine è da scegliere in funzione della misura "F". Vedi tabelle alle pagine di riferimento.



CLAMPING FACE DRIVERS WITH INTEGRAL FLANGE ON SELF-CENTERING CHUCK

MODALITÀ DI BLOCCAGGIO DEI TRASCINATORI A FLANGIA INTEGRALE SU AUTOCENTRANTE

SOFT JAWS:

* *Preliminary operation to take up the axial and radial slack of the self-centering chuck.*

1ª OP.: machine the diameter D after clamping a round flange of suitable diameter in the three jaws.

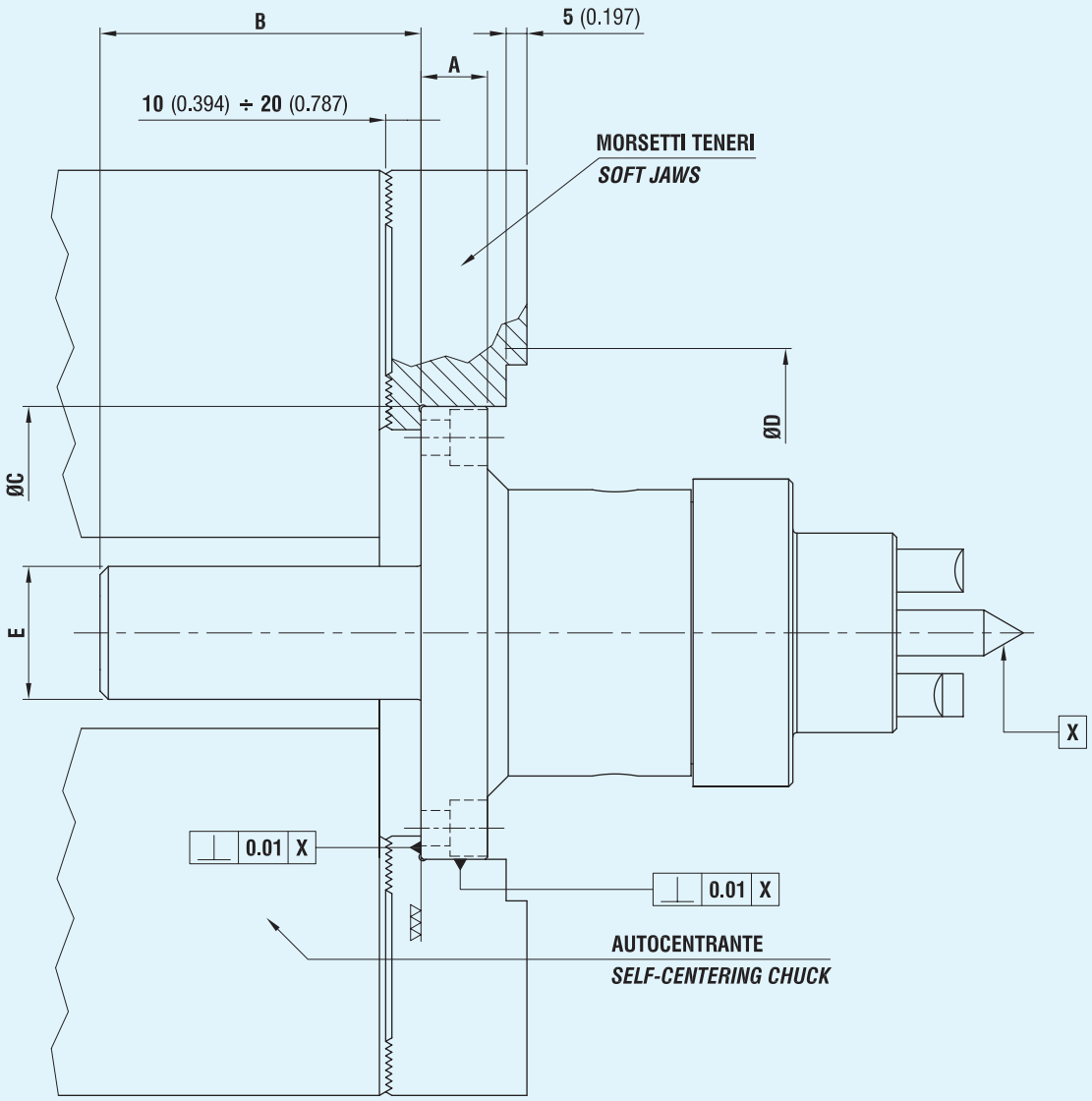
2ª OP.: Machine the diameter C after clamping the appropriate ring in the diameter D.

MORSETTI TENERI:

* Operazione di preparazione allo scopo di recuperare il gioco assiale e radiale dell'autocentrante

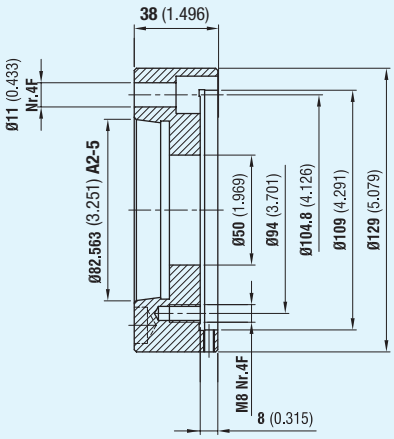
1ª OP.: Ricavare Ø D dopo aver serrato fra i tre morsetti una flangia tonda del diametro opportuno.

2ª OP.: Ricavare Ø C dopo aver serrato l'apposito anello nel Ø D.

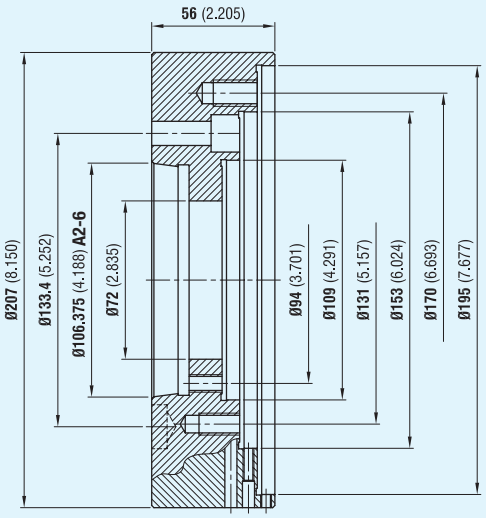


Face Driver Trascinatore	*A*		*B*		*Ø C*		*Ø D*		*Ø E*	
6/30. 5/20. 12/50. 15/55. 20/60	16	(0.630)	56	(2.205)	109	(4.291)	160	(6.299)	32	(1.260)
20/70	16	(0.630)	62	(2.441)	109	(4.291)	160	(6.299)	32	(1.260)
45/120	22	(0.866)	108	(4.252)	153	(6.024)	200	(7.874)	32	(1.260)

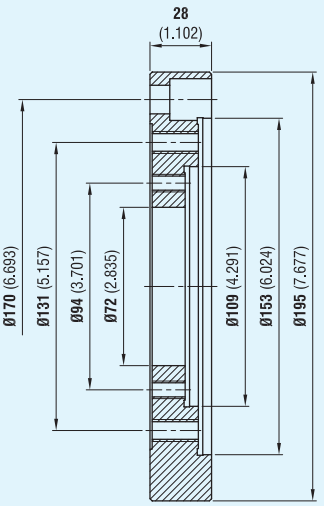
GROUND AND HARDENED **TEMPRATE E RETTIFICATE**



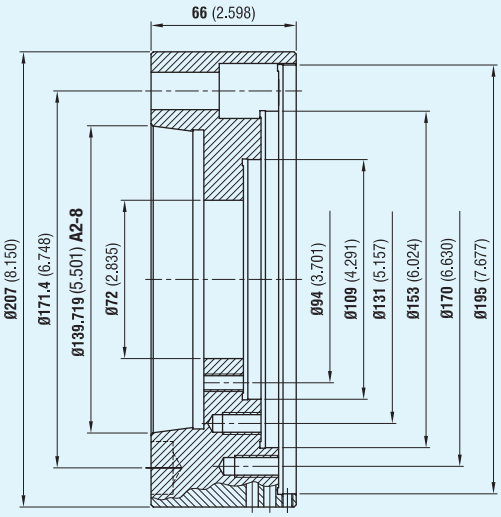
A2-5 flange
Flangia *A2-5*
CODE - CODICE 070700558



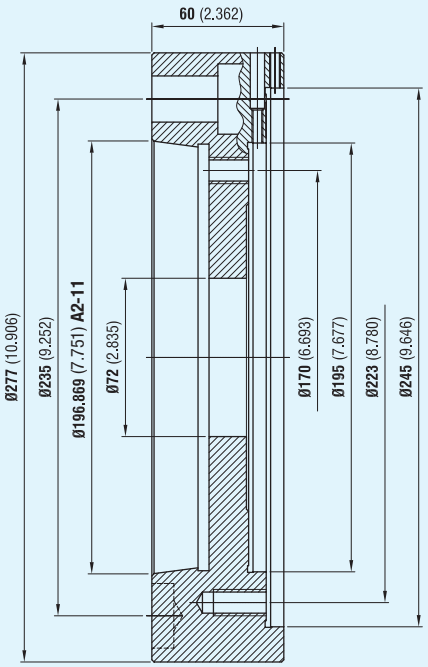
A2-6 flange
Flangia A2-6
CODE - CODICE 070700551



Neutral flange
Flangia Neutra
CODE - CODICE 070700550



A2-8 flange
Flangia *A2-8*
CODE - CODICE 070700552



A2-11 flange
Flangia *A2-11*
CODE - CODICE 070700559

FOR FURTHER AND MORE DETAILED INFORMATION, CONTACT OUR TECHNICAL OFFICE

PER ULTERIORI E PIÙ DETTAGLIATI DATI TECNICI SI PUÒ INTERPELLARE IL NOSTRO UFFICIO TECNICO

FACE DRIVER 6/30

TRASCINATORE FRONTALE 6/30

FEATURES:

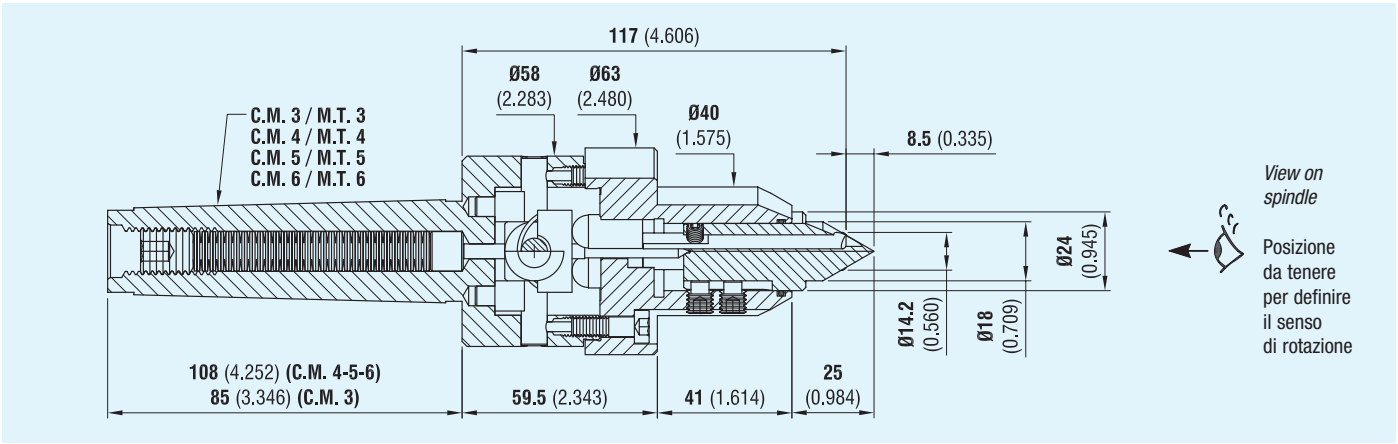
This face driver is suitable for machining shafts of between 6 (inch. 0.236) and 30 (inch. 1.181) millimetres in diameter. Machining with large tools can also be carried out from the face driver side; the center point and the driving pins can be replaced without having to remove other face driver components. For a correct use, shafts must have centres from Ø1.5 (0.059) to Ø 5 (0.197) max.

CARATTERISTICHE:

Questo trascinatore è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 6 e 30 millimetri. Inoltre permette la tornitura con utensili ingombranti anche dal lato del trascinatore e ha la possibilità di sostituire gli artigli di trascinamento e la punta centrale senza smontare altre parti del trascinatore. Per un suo corretto utilizzo gli alberi devono avere centri da Ø 1.5 a Ø 5 max.

FACE DRIVER 6/30 WITH MORSE TAPER FITTING

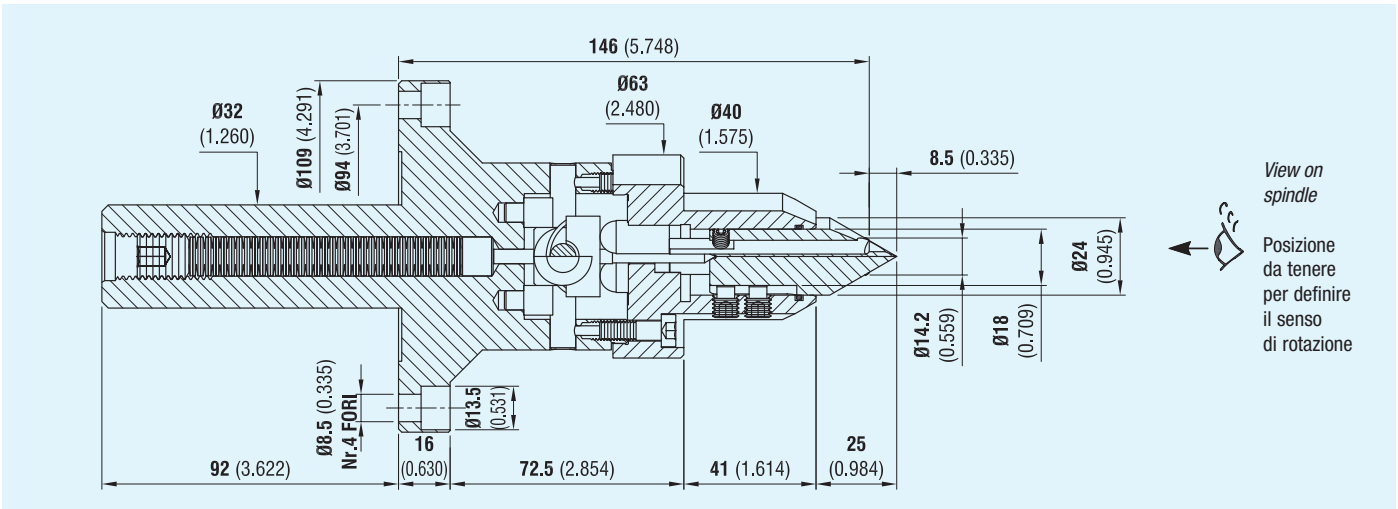
TRASCINATORE FRONTALE 6/30 CON ATTACCO A CONO MORSE



Code right rotation Codice orario	*Code left rotation* Codice antiorario	*Taper* Cono
070752380	070752381	CM3/*MT3*
070752382	070752383	CM4/*MT4*
070752384	070752385	CM5/*MT5*
070752386	070752387	CM6/*MT6*

FACE DRIVER 6/30 WITH INTEGRAL FLANGE

TRASCINATORE FRONTALE 6/30 CON ATTACCO A FLANGIA INTEGRALE



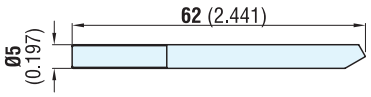
Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760048	070760049

SPARE PARTS FOR FACE DRIVER 6/30

RICAMBI PER TRASCINATORE 6/30

SPARE PARTS

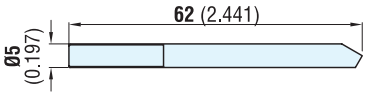
Driving pins for 6/30



left rotation / antiorario

RICAMBI

Artigli di trascinamento per 6/30



right rotation / orario

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080845004	080845001

Lowered driving pins for 6/30

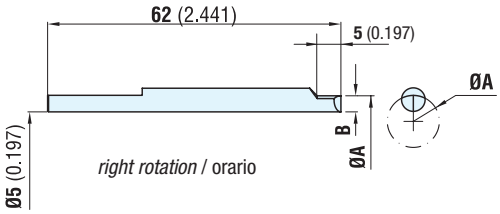
WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

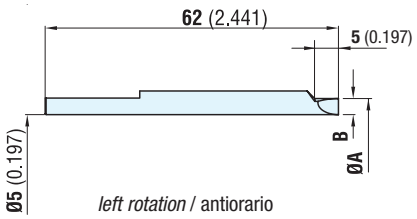
Artigli di trascinamento ribassati per 6/30

Code left rotation Codice antiorario	*Ø A*		*B*	
090901007	7	(0.276)	1.4	(0.055)
090901008	8	(0.315)	1.9	(0.075)
090901009	9	(0.354)	2.4	(0.094)
090901010	10	(0.394)	2.9	(0.114)
090901011	11	(0.433)	3.4	(0.134)
090901012	12	(0.472)	3.9	(0.154)

Code right rotation Codice orario	*Ø A*		*B*	
090900007	7	(0.276)	1.4	(0.055)
090900008	8	(0.315)	1.9	(0.075)
090900009	9	(0.354)	2.4	(0.094)
090900010	10	(0.394)	2.9	(0.114)
090900011	11	(0.433)	3.4	(0.134)
090900012	12	(0.472)	3.9	(0.154)



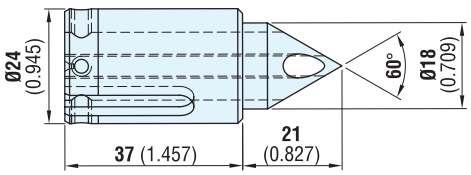
right rotation / orario



left rotation / antiorario

Center point supporting driving pins for 6/30

Punta Centrale porta artigli per 6/30



Code Codice
072102762

NOTES

NOTE

FACE DRIVER 12/50

TRASCINATORE FRONTALE 12/50

FEATURES:

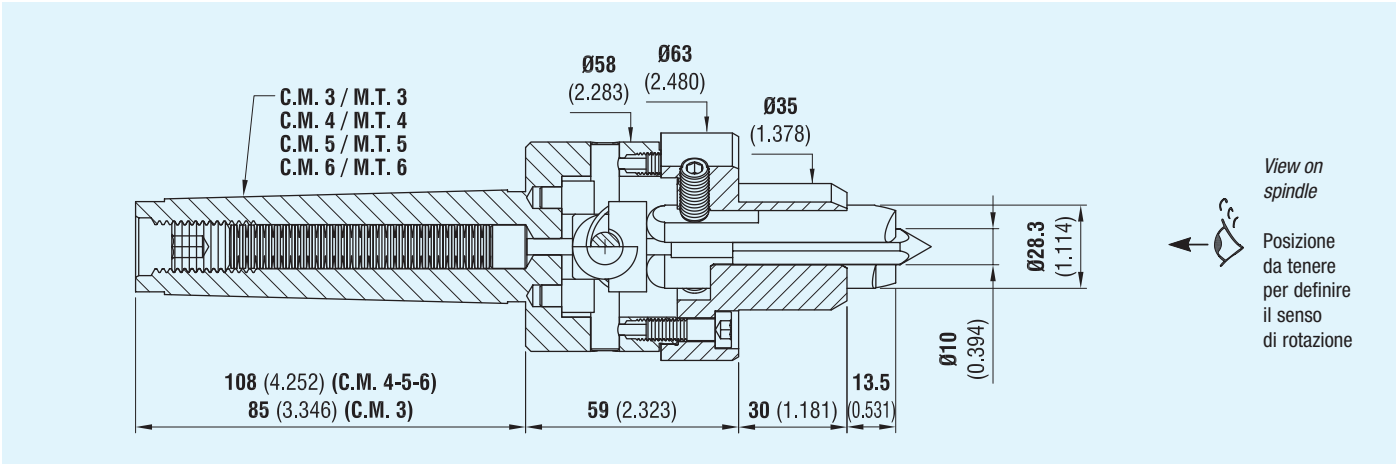
This face driver is suitable for machining shafts of between 12 (inch. 0.472) and 50 (inch. 1.969) millimetres in diameter. Machining with large tools can also be carried out from the face driver side; the center point and the driving pins can be replaced without having to remove other face driver components.

CARATTERISTICHE:

Questo trascinatore è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 12 e 50 millimetri. Inoltre permette la tornitura con utensili ingombranti anche dal lato del trascinatore e ha la possibilità di sostituire gli artigli di trascinamento e la punta centrale senza smontare altre parti del trascinatore.

FACE DRIVER 12/50 WITH MORSE TAPER FITTING

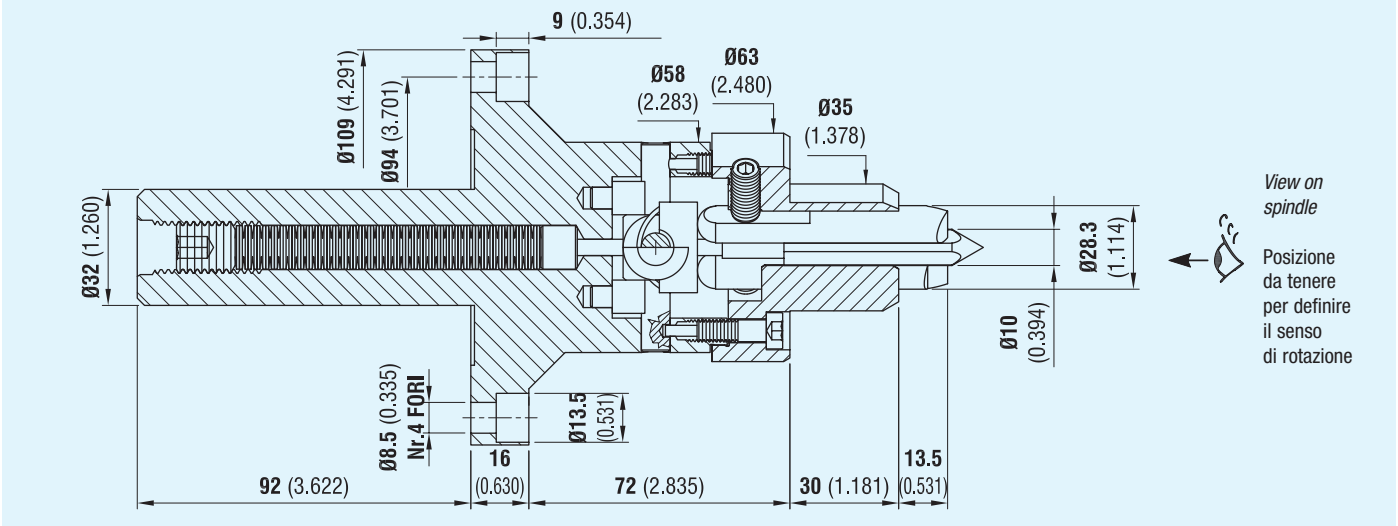
TRASCINATORE FRONTALE 12/50 CON ATTACCO A CONO MORSE



Code right rotation Codice orario	*Code left rotation* Codice antiorario	*Taper* Cono
070752033	070752034	CM3/*MT3*
070752141	070752142	CM4/*MT4*
070752251	070752252	CM5/*MT5*
070752361	070752362	CM6 /*MT6*

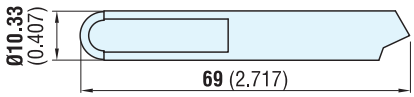
FACE DRIVER 12/50 WITH INTEGRAL FLANGE

TRASCINATORE FRONTALE 12/50 CON ATTACCO A FLANGIA INTEGRALE

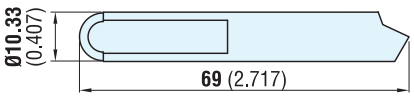


Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760018	070760009

SPARE PARTS
Driving pins for 12/50



left rotation / antiorario



right rotation / orario

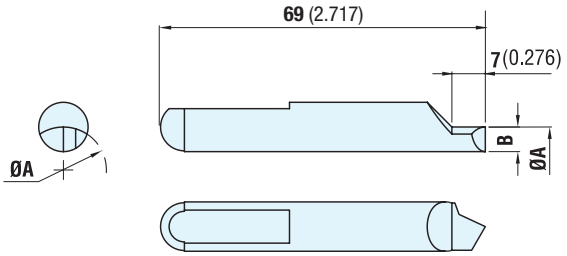
RICAMBI
Artigli di trascinamento per 12/50

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080809002	080809003

Lowered driving pins for 12/50

WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

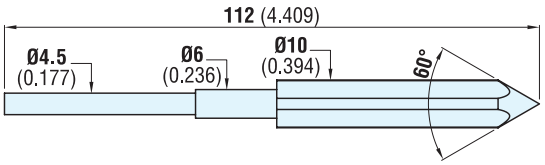


Artigli di trascinamento ribassati per 12/50

Code left rotation Cod. antiorario	*Ø A*	*B*
090909012	12 (0.472)	2.1 (0.083)
090909013	13 (0.512)	2.6 (0.102)
090909014	14 (0.551)	3.1 (0.122)
090909015	15 (0.591)	3.6 (0.142)
090909016	16 (0.630)	4.1 (0.161)
090909017	17 (0.669)	4.6 (0.181)
090909018	18 (0.709)	5.1 (0.201)
090909019	19 (0.748)	5.6 (0.220)
090909020	20 (0.787)	6.1 (0.240)
090909021	21 (0.827)	6.6 (0.260)
090909022	22 (0.866)	7.1 (0.280)
090909023	23 (0.906)	7.6 (0.299)
090909024	24 (0.945)	8.1 (0.319)
090909025	25 (0.984)	8.6 (0.339)

Code right rotation Codice orario	*Ø A*	*B*
090909112	12 (0.472)	2.1 (0.083)
090909113	13 (0.512)	2.6 (0.102)
090909114	14 (0.551)	3.1 (0.122)
090909115	15 (0.591)	3.6 (0.142)
090909116	16 (0.630)	4.1 (0.161)
090909117	17 (0.669)	4.6 (0.181)
090909118	18 (0.709)	5.1 (0.201)
090909119	19 (0.748)	5.6 (0.220)
090909120	20 (0.787)	6.1 (0.240)
090909121	21 (0.827)	6.6 (0.260)
090909122	22 (0.866)	7.1 (0.280)
090909123	23 (0.906)	7.6 (0.299)
090909124	24 (0.945)	8.1 (0.319)
090909125	25 (0.984)	8.6 (0.339)

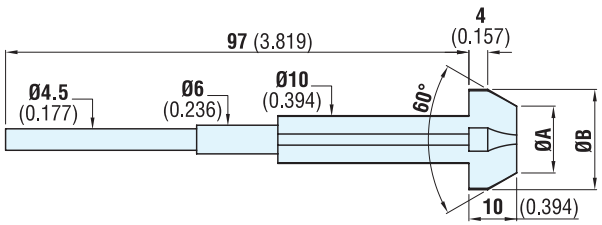
Center point for 12/50



Punta centrale per 12/50

Code Codice
072102741

Center points with slots for 12/50
(for large centers or holes)



Punte centrali a capruggine per 12/50
(per centri grandi o fori)

Code centre points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171711009	5 (0.197)	12 (0.472)	7.5 (0.295)	10.5 (0.413)
171711010	8 (0.315)	15 (0.591)	10.5 (0.413)	13.5 (0.531)
171711011	11 (0.433)	18 (0.709)	13.5 (0.531)	16.5 (0.650)
171711012	14 (0.551)	21 (0.827)	16.5 (0.650)	19.5 (0.768)
171711013	17 (0.669)	24 (0.945)	19.5 (0.768)	22.5 (0.886)
171711014	20 (0.787)	27 (1.063)	22.5 (0.886)	25.5 (1.004)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

FACE DRIVER 15/55

TRASCINATORE FRONTALE 15/55

FEATURES:

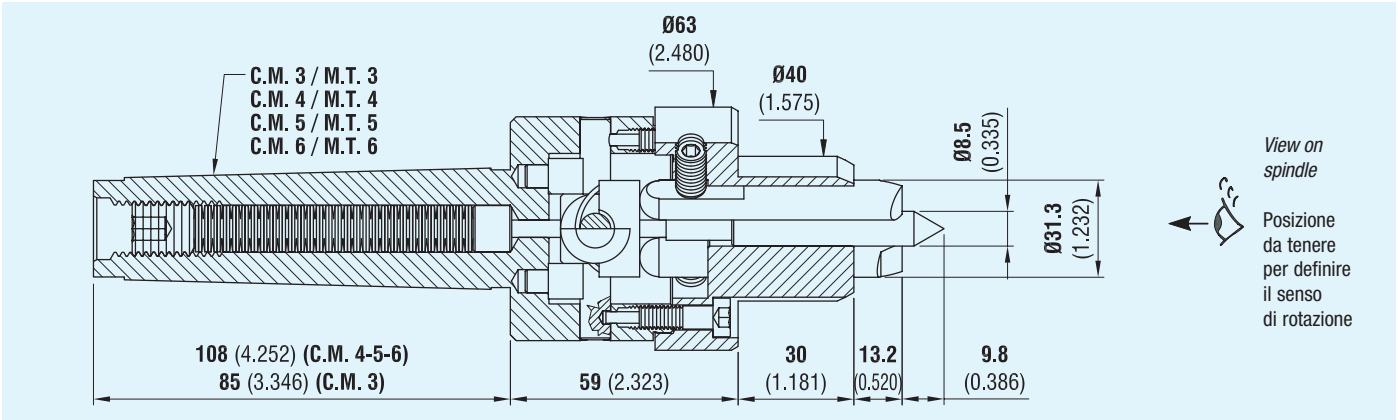
This face driver is suitable for machining shafts of between 15 (inch. 0.591) and 55 (inch. 2.165) millimetres in diameter. Machining with large tools can also be carried out from the face driver side; the center point and the driving pins can be replaced without having to remove other face driver components.

CARATTERISTICHE:

Questo trascinatore è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 15 e 55 millimetri. Inoltre permette la tornitura con utensili ingombranti anche dal lato del trascinatore e ha la possibilità di sostituire gli artigli di trascinamento e la punta centrale senza smontare altre parti del trascinatore.

FACE DRIVER 15/55 WITH MORSE TAPER FITTING

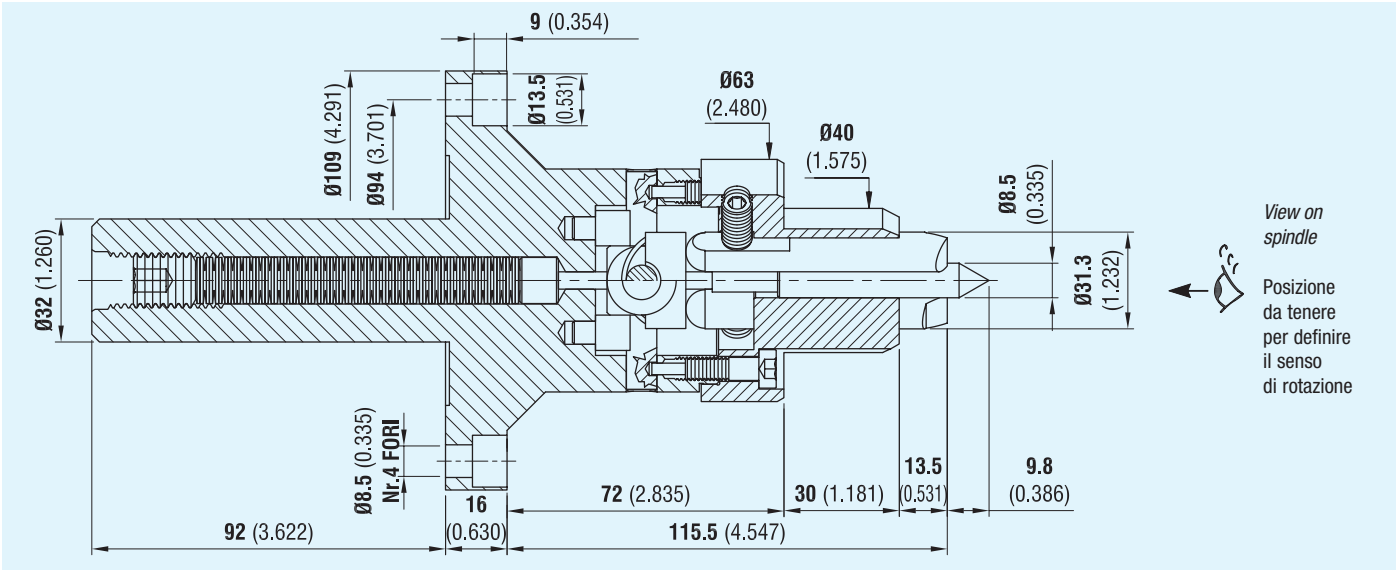
TRASCINATORE FRONTALE 15/55 CON ATTACCO A CONO MORSE



Code right rotation Codice orario	*Code left rotation* Codice antiorario	*Taper* Cono
070752390	070752391	CM3/MT3
070752392	070752393	CM4/MT4
070752394	070752395	CM5/MT5
070752396	070752397	CM6/MT6

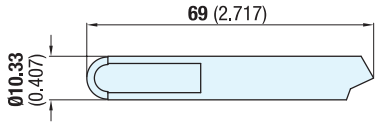
FACE DRIVER 15/55 WITH INTEGRAL FLANGE

TRASCINATORE FRONTALE 15/55 CON ATTACCO A FLANGIA INTEGRALE

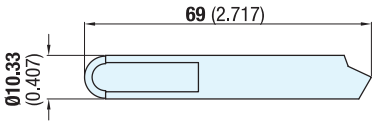


Code right rotation Codice orario	*Code left rotation* Codice antiorario
070752406	070752407

SPARE PARTS
Driving pins for 15/55



left rotation / antiorario



right rotation / orario

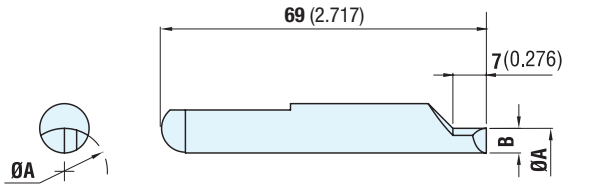
RICAMBI
Artigli di trascinamento per 15/55

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080809002	080809003

Lowered driving pins for 15/55

WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

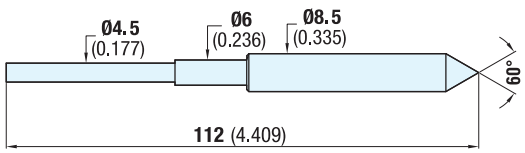


Artigli di trascinamento ribassati per 15/55

Code left rotation Cod. antiorario	*Ø A*	*B*
090909012	15 (0.591)	2.1 (0.083)
090909013	16 (0.630)	2.6 (0.102)
090909014	17 (0.669)	3.1 (0.122)
090909015	18 (0.709)	3.6 (0.142)
090909016	19 (0.748)	4.1 (0.161)
090909017	20 (0.787)	4.6 (0.181)
090909018	21 (0.827)	5.1 (0.201)
090909019	22 (0.866)	5.6 (0.220)
090909020	23 (0.906)	6.1 (0.240)
090909021	24 (0.945)	6.6 (0.260)
090909022	25 (0.984)	7.1 (0.280)
090909023	26 (1.024)	7.6 (0.299)
090909024	27 (1.063)	8.1 (0.319)
090909025	28 (1.102)	8.6 (0.339)

Code right rotation Codice orario	*Ø A*	*B*
090909112	15 (0.591)	2.1 (0.083)
090909113	16 (0.630)	2.6 (0.102)
090909114	17 (0.669)	3.1 (0.122)
090909115	18 (0.709)	3.6 (0.142)
090909116	19 (0.748)	4.1 (0.161)
090909117	20 (0.787)	4.6 (0.181)
090909118	21 (0.827)	5.1 (0.201)
090909119	22 (0.866)	5.6 (0.220)
090909120	23 (0.906)	6.1 (0.240)
090909121	24 (0.945)	6.6 (0.260)
090909122	25 (0.984)	7.1 (0.280)
090909123	26 (1.024)	7.6 (0.299)
090909124	27 (1.063)	8.1 (0.319)
090909125	28 (1.102)	8.6 (0.339)

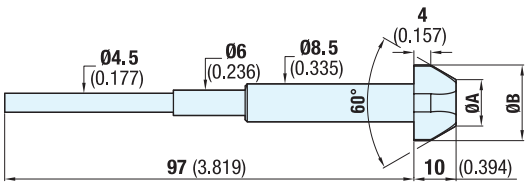
Center point for 15/55



Punta centrale per 15/55

Code Codice
072102766

Center points with slots for 15/55
(for large centers or holes)



Punte centrali a capruggine per 15/55
(per centri grandi o fori)

Code centre points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171711015	5 (0.197)	12 (0.472)	7.5 (0.295)	10.5 (0.413)
171711016	8 (0.315)	15 (0.591)	10.5 (0.413)	13.5 (0.531)
171711017	11 (0.433)	18 (0.709)	13.5 (0.531)	16.5 (0.650)
171711019	14 (0.551)	21 (0.827)	16.5 (0.650)	19.5 (0.768)
171711020	17 (0.669)	24 (0.945)	19.5 (0.768)	22.5 (0.886)
171711022	20 (0.787)	27 (1.063)	22.5 (0.886)	25.5 (1.004)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

FACE DRIVER 20/60

TRASCINATORE FRONTALE 20/60

FEATURES:

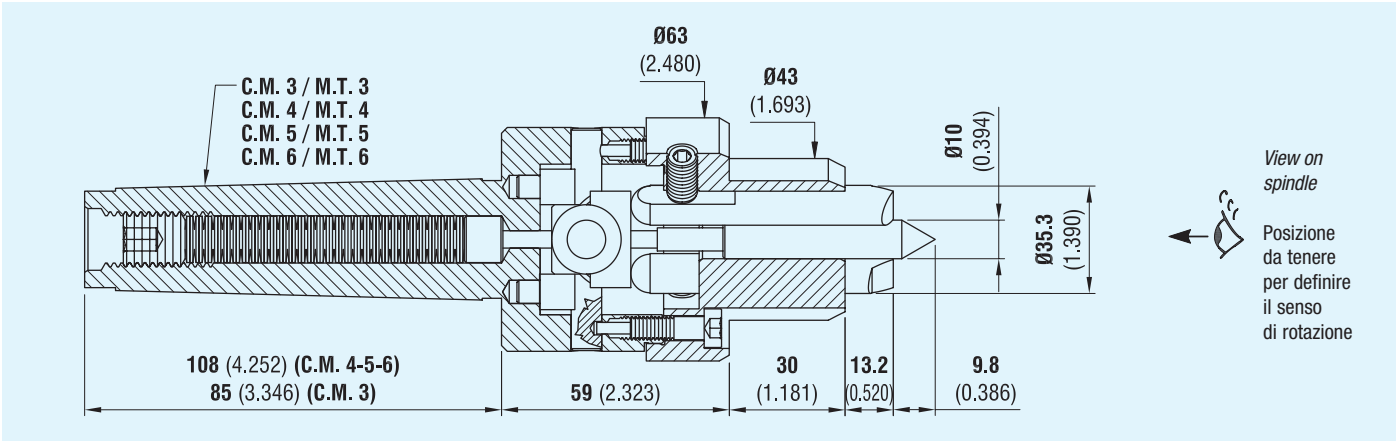
This face driver is suitable for machining shafts of between 20 (inch. 0.787) and 60 (inch. 2.362) millimetres in diameter. Machining with large tools can also be carried out from the face driver side; the center point and the driving pins can be replaced without having to remove other face driver components.

CARATTERISTICHE:

Questo trascinatore è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 20 e 60 millimetri. Inoltre permette la tornitura con utensili ingombranti anche dal lato del trascinatore e ha la possibilità di sostituire gli artigli di trascinamento e la punta centrale senza smontare altre parti del trascinatore.

FACE DRIVER 20/60 WITH MORSE TAPER FITTING

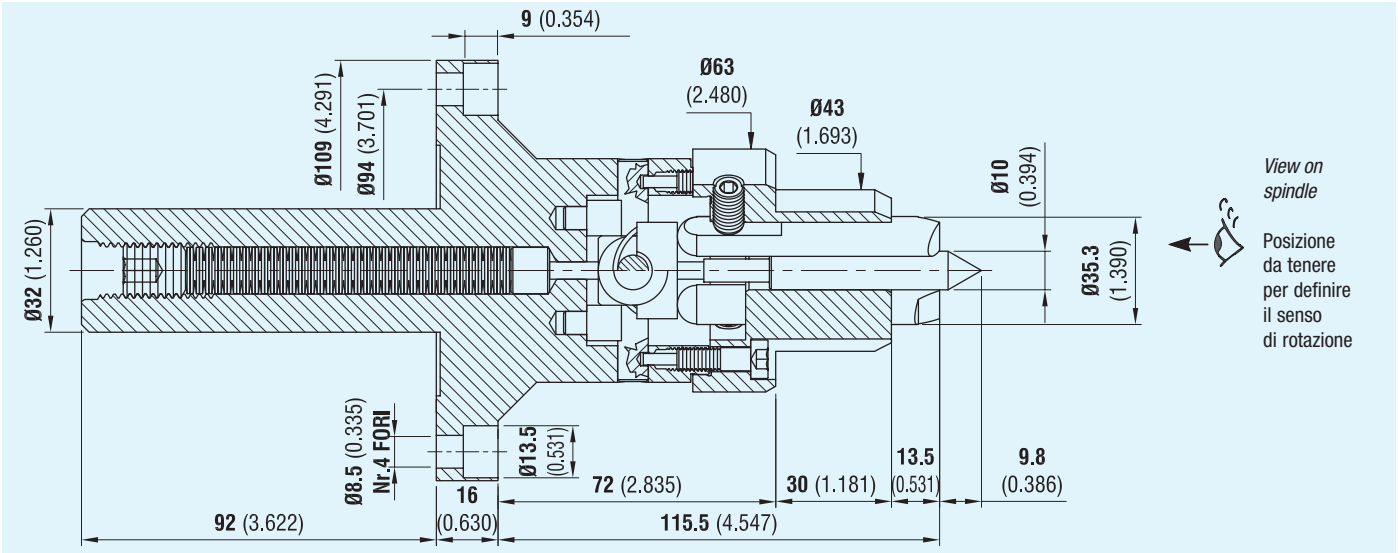
TRASCINATORE FRONTALE 20/60 CON ATTACCO A CONO MORSE



Code right rotation Codice orario	*Code left rotation* *Codice antiorario*	*Taper* Cono
070752398	070752399	CM3/*MT3*
070752400	070752401	CM4/*MT4*
070752402	070752403	CM5/*MT5*
070752404	070752405	CM6/*MT6*

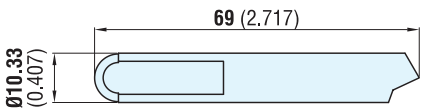
FACE DRIVER 20/60 WITH INTEGRAL FLANGE

TRASCINATORE FRONTALE 20/60 CON ATTACCO A FLANGIA INTEGRALE

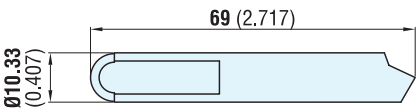


Code right rotation Codice orario	*Code left rotation* Codice antiorario
070752408	070752409

SPARE PARTS
Driving pins for 20/60



left rotation / antiorario



right rotation / orario

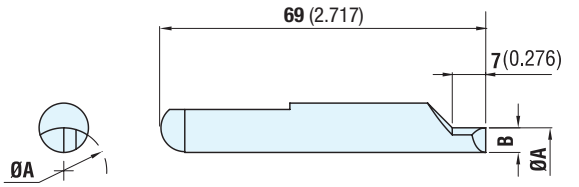
RICAMBI
Artigli di trascinamento per 20/60

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080809002	080809003

Lowered driving pins for 20/60

WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

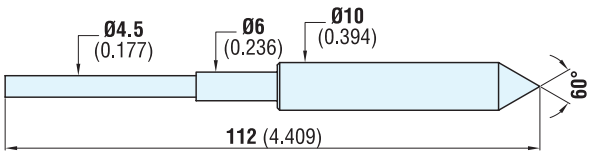


Artigli di trascinamento ribassati per 20/60

Code left rotation Codice antiorario	*Ø A*	*B*
090909012	19 (0.748)	2.1 (0.083)
090909013	20 (0.787)	2.6 (0.102)
090909014	21 (0.827)	3.1 (0.122)
090909015	22 (0.866)	3.6 (0.142)
090909016	23 (0.906)	4.1 (0.161)
090909017	24 (0.945)	4.6 (0.181)
090909018	25 (0.984)	5.1 (0.201)
090909019	26 (1.024)	5.6 (0.220)
090909020	27 (1.063)	6.1 (0.240)
090909021	28 (1.102)	6.6 (0.260)
090909022	29 (1.142)	7.1 (0.280)
090909023	30 (1.181)	7.6 (0.299)
090909024	31 (1.220)	8.1 (0.319)
090909025	32 (1.260)	8.6 (0.339)

Code right rotation Codice orario	*Ø A*	*B*
090909112	19 (0.748)	2.1 (0.083)
090909113	20 (0.787)	2.6 (0.102)
090909114	21 (0.827)	3.1 (0.122)
090909115	22 (0.866)	3.6 (0.142)
090909116	23 (0.906)	4.1 (0.161)
090909117	24 (0.945)	4.6 (0.181)
090909118	25 (0.984)	5.1 (0.201)
090909119	26 (1.024)	5.6 (0.220)
090909120	27 (1.063)	6.1 (0.240)
090909121	28 (1.102)	6.6 (0.260)
090909122	29 (1.142)	7.1 (0.280)
090909123	30 (1.181)	7.6 (0.299)
090909124	31 (1.220)	8.1 (0.319)
090909125	32 (1.260)	8.6 (0.339)

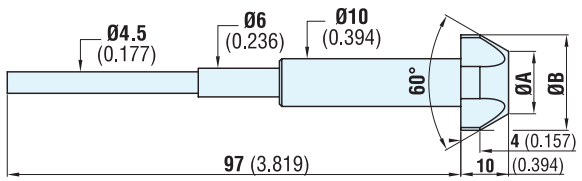
Center point for 20/60



Punta centrale per 20/60

Code Codice
072102767

Center points with slots for 20/60
(for large centers or holes)



Punte centrali a capruggine per 20/60
(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal *Ø*	*to* / al *Ø*
171712018	5 (0.197)	12 (0.472)	7.5 (0.295)	10.5 (0.413)
171712019	8 (0.315)	15 (0.591)	10.5 (0.413)	13.5 (0.531)
171712020	11 (0.433)	18 (0.709)	13.5 (0.531)	16.5 (0.650)
171712022	14 (0.551)	21 (0.827)	16.5 (0.650)	19.5 (0.768)
171712024	17 (0.669)	24 (0.945)	19.5 (0.768)	22.5 (0.886)
171712026	20 (0.787)	27 (1.063)	22.5 (0.886)	25.5 (1.004)
171712027	23 (0.906)	30 (1.181)	25.5 (1.004)	28.5 (1.122)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

FACE DRIVER 20/70

TRASCINATORE FRONTALE 20/70

FEATURES:

This face driver is suitable for machining shafts of between 20 (inch. 0.787) and 70 (inch. 2.756) millimetres in diameter.

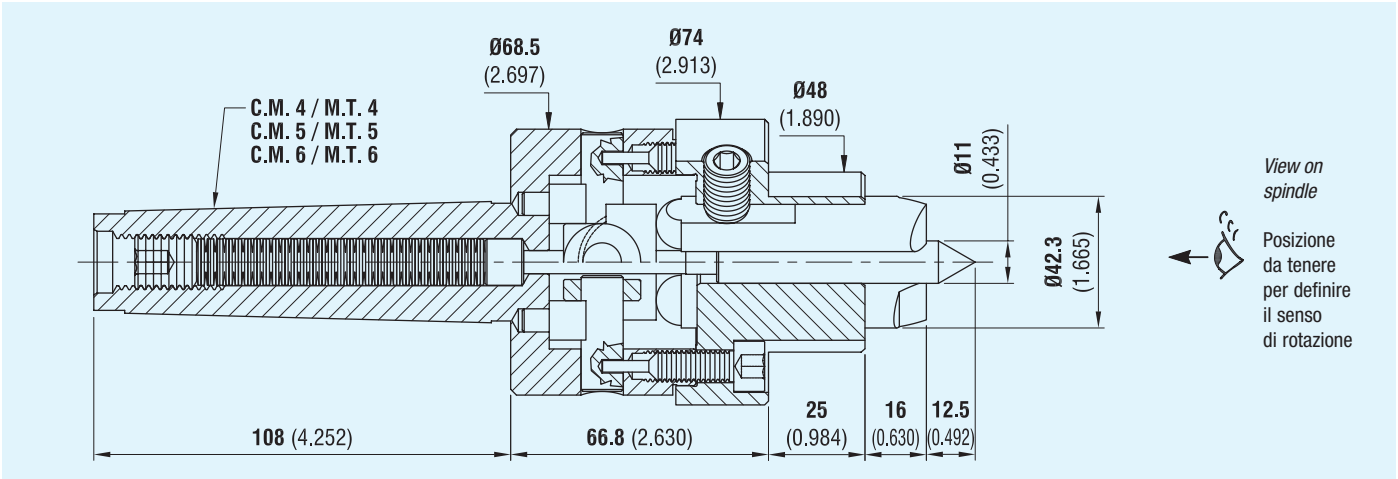
Machining with large tools can also be carried out from the face driver side; the center point and the driving pins can be replaced without having to remove other face driver components.

CARATTERISTICHE:

Questo trascinatore è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 20 e 70 millimetri. Inoltre permette la tornitura con utensili ingombranti anche dal lato del trascinatore e ha la possibilità di sostituire gli artigli di trascinamento e la punta centrale senza smontare altre parti del trascinatore.

FACE DRIVER 20/70 WITH MORSE TAPER FITTING

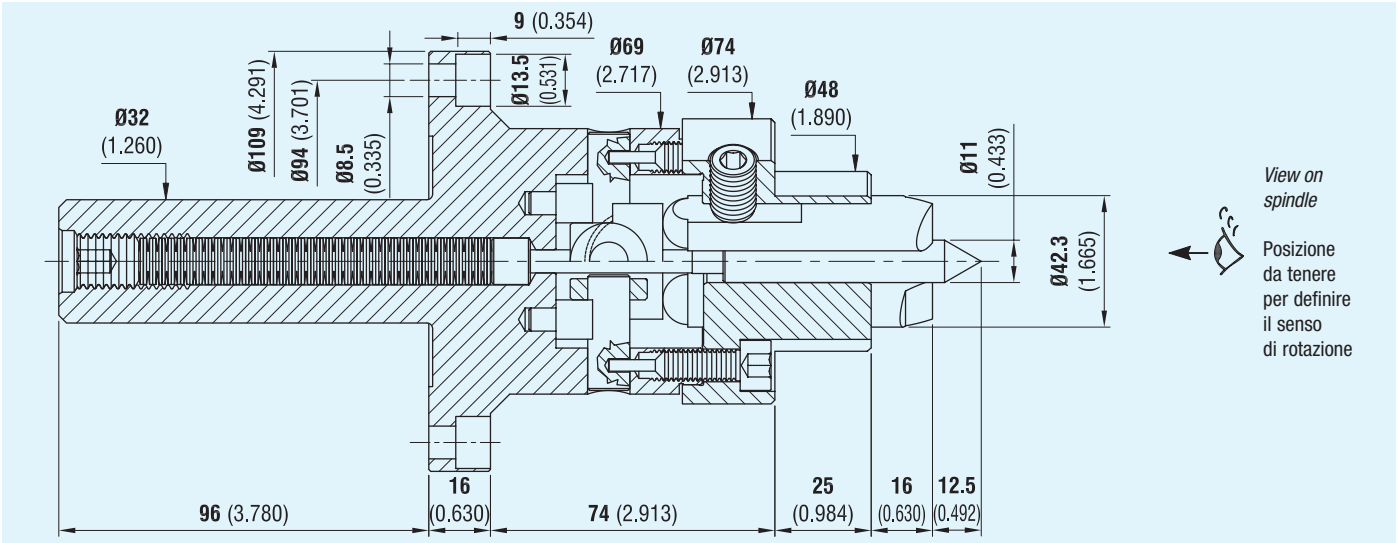
TRASCINATORE FRONTALE 20/70 CON ATTACCO A CONO MORSE



Code right rotation Codice orario	*Code left rotation* Codice antiorario	*Taper* Cono
070752365	070752366	CM4/*MT4*
070752367	070752368	CM5/*MT5*
070752369	070752370	CM6/*MT6*

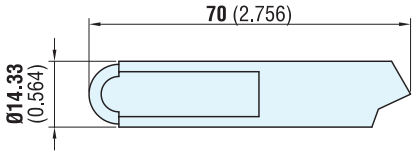
FACE DRIVER 20/70 WITH INTEGRAL FLANGE

TRASCINATORE FRONTALE 20/70 CON ATTACCO A FLANGIA INTEGRALE

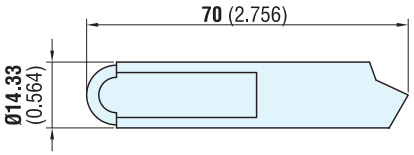


Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760030	070760028

SPARE PARTS
Driving pins for 20/70



left rotation / antiorario



right rotation / orario

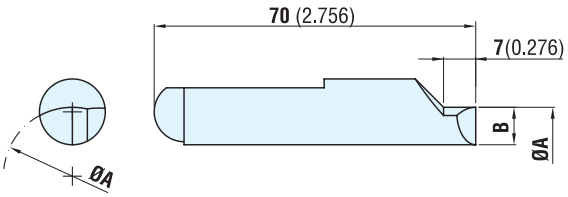
RICAMBI
Artigli di trascinamento per 20/70

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080809004	080809005

Lowered driving pins for 20/70

WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

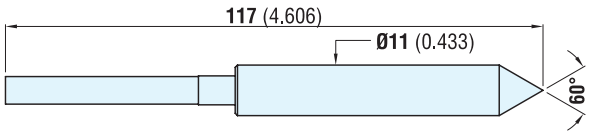


Artigli di trascinamento ribassati per 20/70

Code left rotation Codice antiorario	*Ø A*	*B*
090909219	19 (0.748)	2.7 (0.106)
090909220	20 (0.787)	3.2 (0.126)
090909221	21 (0.827)	3.7 (0.146)
090909222	22 (0.866)	4.2 (0.165)
090909223	23 (0.906)	4.7 (0.185)
090909224	24 (0.945)	5.2 (0.205)
090909225	25 (0.984)	5.7 (0.224)
090909226	26 (1.024)	6.2 (0.244)
090909227	27 (1.063)	6.7 (0.264)
090909228	28 (1.102)	7.2 (0.283)
090909229	29 (1.142)	7.7 (0.303)
090909230	30 (1.181)	8.2 (0.323)
090909231	31 (1.220)	8.7 (0.343)
090909232	32 (1.260)	9.2 (0.362)
090909233	33 (1.299)	9.7 (0.382)
090909234	34 (1.339)	10.2 (0.402)
090909235	35 (1.378)	10.7 (0.421)
090909236	36 (1.417)	11.2 (0.441)

Code right rotation Codice orario	*Ø A*	*B*
090909319	19 (0.748)	2.7 (0.106)
090909320	20 (0.787)	3.2 (0.126)
090909321	21 (0.827)	3.7 (0.146)
090909322	22 (0.866)	4.2 (0.165)
090909323	23 (0.906)	4.7 (0.185)
090909324	24 (0.945)	5.2 (0.205)
090909325	25 (0.984)	5.7 (0.224)
090909326	26 (1.024)	6.2 (0.244)
090909327	27 (1.063)	6.7 (0.264)
090909328	28 (1.102)	7.2 (0.283)
090909329	29 (1.142)	7.7 (0.303)
090909330	30 (1.181)	8.2 (0.323)
090909331	31 (1.220)	8.7 (0.343)
090909332	32 (1.260)	9.2 (0.362)
090909333	33 (1.299)	9.7 (0.382)
090909334	34 (1.339)	10.2 (0.402)
090909335	35 (1.378)	10.7 (0.421)
090909336	36 (1.417)	11.2 (0.441)

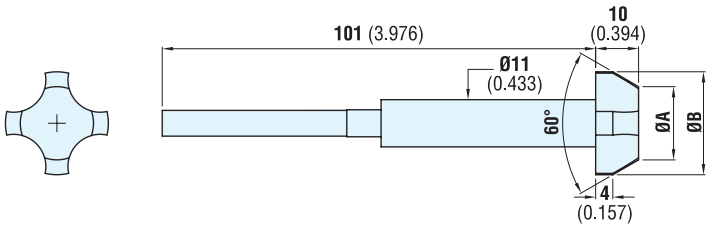
Center point for 20/70



Punta centrale per 20/70

Code Codice
072102756

Center points with slots for 20/70
(for large centers or holes)



Punte centrali a capruggine per 20/70
(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171712010	8 (0.315)	15 (0.591)	10.5 (0.413)	13.5 (0.531)
171712011	11 (0.433)	18 (0.709)	13.5 (0.531)	16.5 (0.650)
171712012	14 (0.551)	21 (0.827)	16.5 (0.650)	19.5 (0.768)
171712013	17 (0.669)	24 (0.945)	19.5 (0.768)	22.5 (0.886)
171712014	20 (0.787)	27 (1.063)	22.5 (0.886)	25.5 (1.004)
171712015	23 (0.906)	30 (1.181)	25.5 (1.004)	28.5 (1.122)
171712016	26 (1.024)	33 (1.299)	28.5 (1.122)	31.5 (1.240)
171712017	29 (1.142)	36 (1.417)	31.5 (1.240)	34.5 (1.358)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

FACE DRIVER 45/120

TRASCINATORE FRONTALE 45/120

FEATURES:

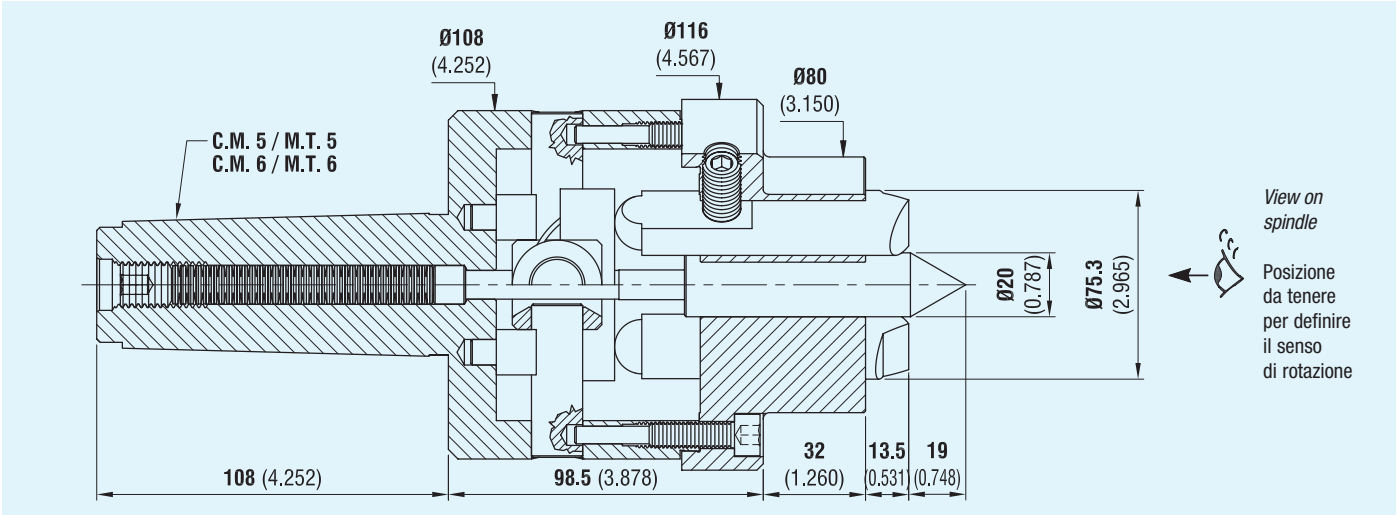
This face driver is suitable for machining shafts of between 45 (inch. 1.772) and 120 (inch. 4.724) millimetres in diameter.
Machining with large tools can also be carried out from the face driver side; the center point and the driving pins can be replaced without having to remove other face driver components.

CARATTERISTICHE:

Questo trascinatore è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 45 e 120 millimetri. Inoltre permette la tornitura con utensili ingombranti anche dal lato del trascinatore e ha la possibilità di sostituire gli artigli di trascinamento e la punta centrale senza smontare altre parti del trascinatore.

FACE DRIVER 45/120 WITH MORSE TAPER FITTING

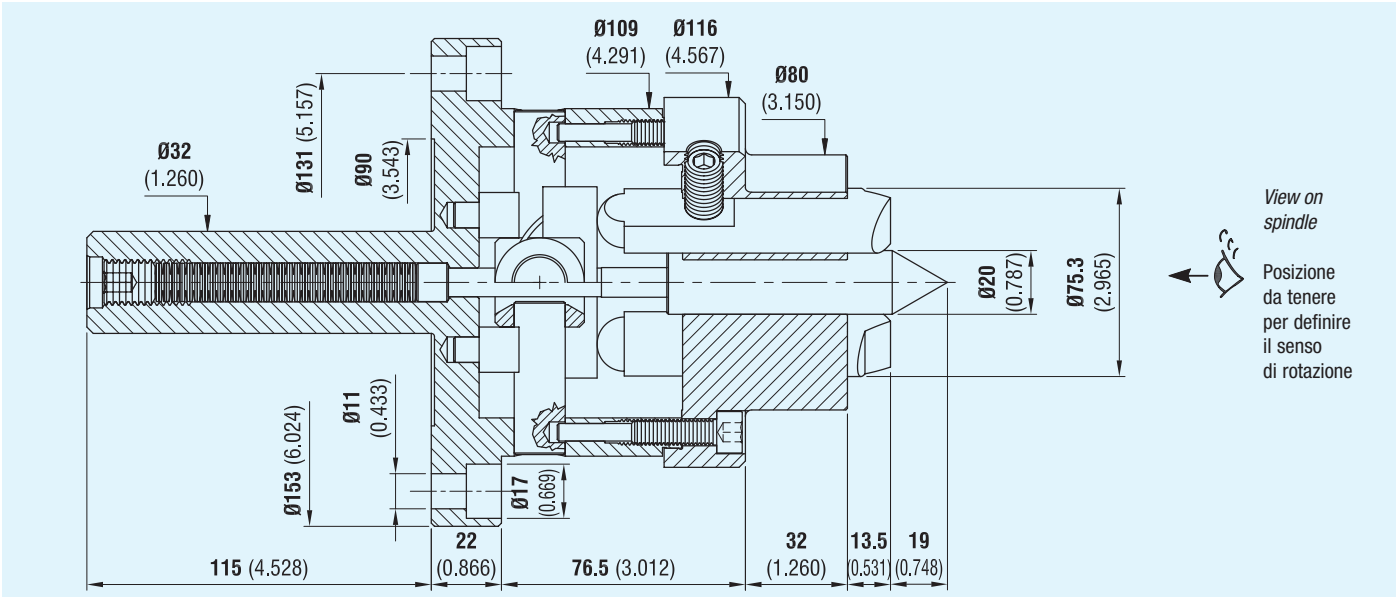
TRASCINATORE FRONTALE 45/120 CON ATTACCO A CONO MORSE



Code right rotation Codice orario	*Code left rotation* Codice antiorario	*Taper* Cono
070750756	070750755	CM5/MT5
070751066	070751065	CM6/MT6

FACE DRIVER 45/120 WITH INTEGRAL FLANGE

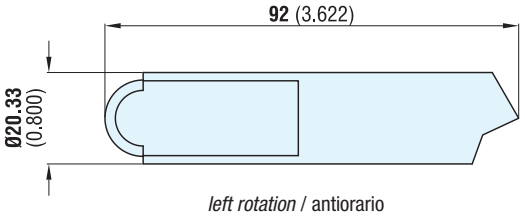
TRASCINATORE FRONTALE 45/120 CON ATTACCO A FLANGIA INTEGRALE



Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760034	070760032

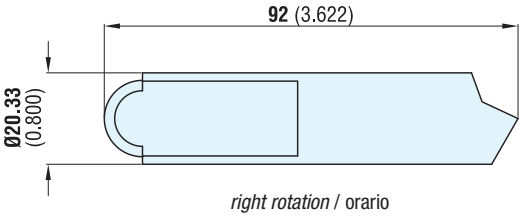
SPARE PARTS

Driving pins for 45/120



RICAMBI

Artigli di trascinamento per 45/120



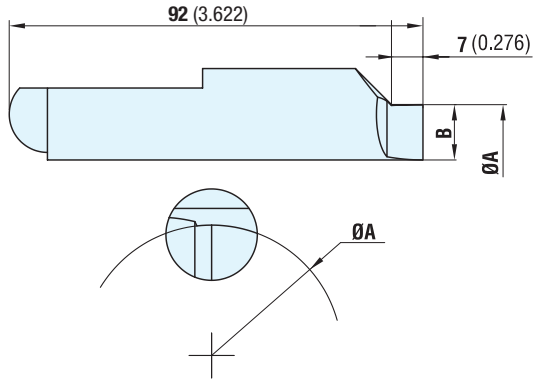
Code left rotation Codice antiorario
080845014

Code right rotation Codice orario
080845015

Lowered driving pins for 45/120

WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

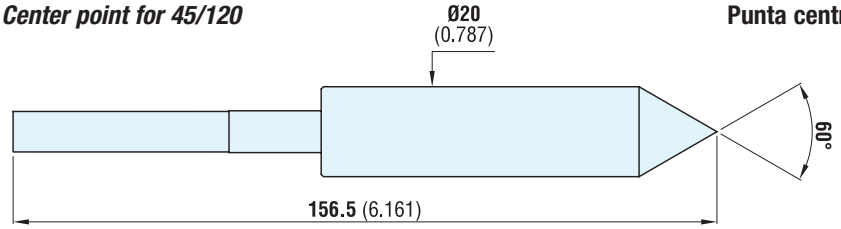


Artigli di trascinamento ribassati per 45/120

Code left rotation Codice antiorario	*Ø A*	*B*
090945244	44 (1.732)	4.8 (0.189)
090945245	45 (1.772)	5.3 (0.209)
090945246	46 (1.811)	5.8 (0.228)
090945247	47 (1.850)	6.3 (0.248)
090945248	48 (1.890)	6.8 (0.268)
090945249	49 (1.929)	7.3 (0.287)
090945250	50 (1.969)	7.8 (0.307)
090945251	51 (2.008)	8.3 (0.327)
090945252	52 (2.047)	8.8 (0.346)
090945253	53 (2.087)	9.3 (0.366)
090945254	54 (2.126)	9.8 (0.386)
090945255	55 (2.165)	10.3 (0.406)
090945256	56 (2.205)	10.8 (0.425)
090945257	57 (2.244)	11.3 (0.445)
090945258	58 (2.283)	11.8 (0.465)
090945259	59 (2.323)	12.3 (0.484)
090945260	60 (2.362)	12.8 (0.504)
090945261	61 (2.402)	13.3 (0.524)
090945262	62 (2.441)	13.8 (0.543)
090945263	63 (2.480)	14.3 (0.563)
090945264	64 (2.520)	14.8 (0.583)
090945265	65 (2.559)	15.3 (0.602)

Code right rotation Codice orario	*Ø A*	*B*
090945344	44 (1.732)	4.8 (0.189)
090945345	45 (1.772)	5.3 (0.209)
090945346	46 (1.811)	5.8 (0.228)
090945347	47 (1.850)	6.3 (0.248)
090945348	48 (1.890)	6.8 (0.268)
090945349	49 (1.929)	7.3 (0.287)
090945350	50 (1.969)	7.8 (0.307)
090945351	51 (2.008)	8.3 (0.327)
090945352	52 (2.047)	8.8 (0.346)
090945353	53 (2.087)	9.3 (0.366)
090945354	54 (2.126)	9.8 (0.386)
090945355	55 (2.165)	10.3 (0.406)
090945356	56 (2.205)	10.8 (0.425)
090945357	57 (2.244)	11.3 (0.445)
090945358	58 (2.283)	11.8 (0.465)
090945359	59 (2.323)	12.3 (0.484)
090945360	60 (2.362)	12.8 (0.504)
090945361	61 (2.402)	13.3 (0.524)
090945362	62 (2.441)	13.8 (0.543)
090945363	63 (2.480)	14.3 (0.563)
090945364	64 (2.520)	14.8 (0.583)
090945365	65 (2.559)	15.3 (0.602)

Center point for 45/120

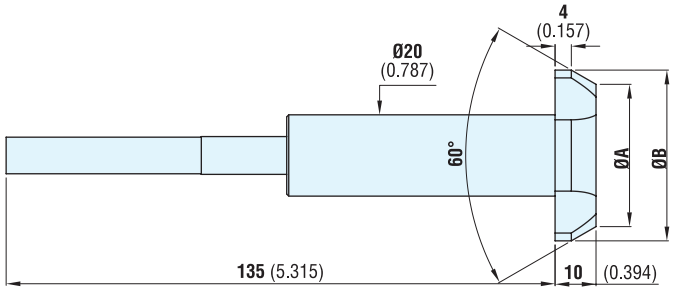


Punta centrale per 45/120

Code Codice
072102758

Center points with slots for 45/120

(for large centers or holes)



Punte centrali a capruggine per 45/120

(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171713020	14 (0.551)	21 (0.827)	16.5 (0.650)	19.5 (0.768)
171713021	17 (0.669)	24 (0.945)	19.5 (0.768)	22.5 (0.886)
171713022	20 (0.787)	27 (1.063)	22.5 (0.886)	25.5 (1.004)
171713023	23 (0.906)	30 (1.181)	25.5 (1.004)	28.5 (1.122)
171713024	26 (1.024)	33 (1.299)	28.5 (1.122)	31.5 (1.240)
171713025	29 (1.142)	36 (1.417)	31.5 (1.240)	34.5 (1.358)
171713026	32 (1.260)	39 (1.535)	34.5 (1.358)	37.5 (1.476)
171713027	35 (1.378)	42 (1.654)	37.5 (1.476)	40.5 (1.594)
171713028	38 (1.496)	45 (1.772)	40.5 (1.594)	43.5 (1.713)
171713029	41 (1.614)	48 (1.890)	43.5 (1.713)	46.5 (1.831)
171713030	44 (1.732)	51 (2.008)	46.5 (1.831)	49.5 (1.949)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

FACE DRIVER 100/220 WITH INTEGRAL FLANGE

TRASCINATORE FRONTALE 100/220 CON ATTACCO A FLANGIA INTEGRALE

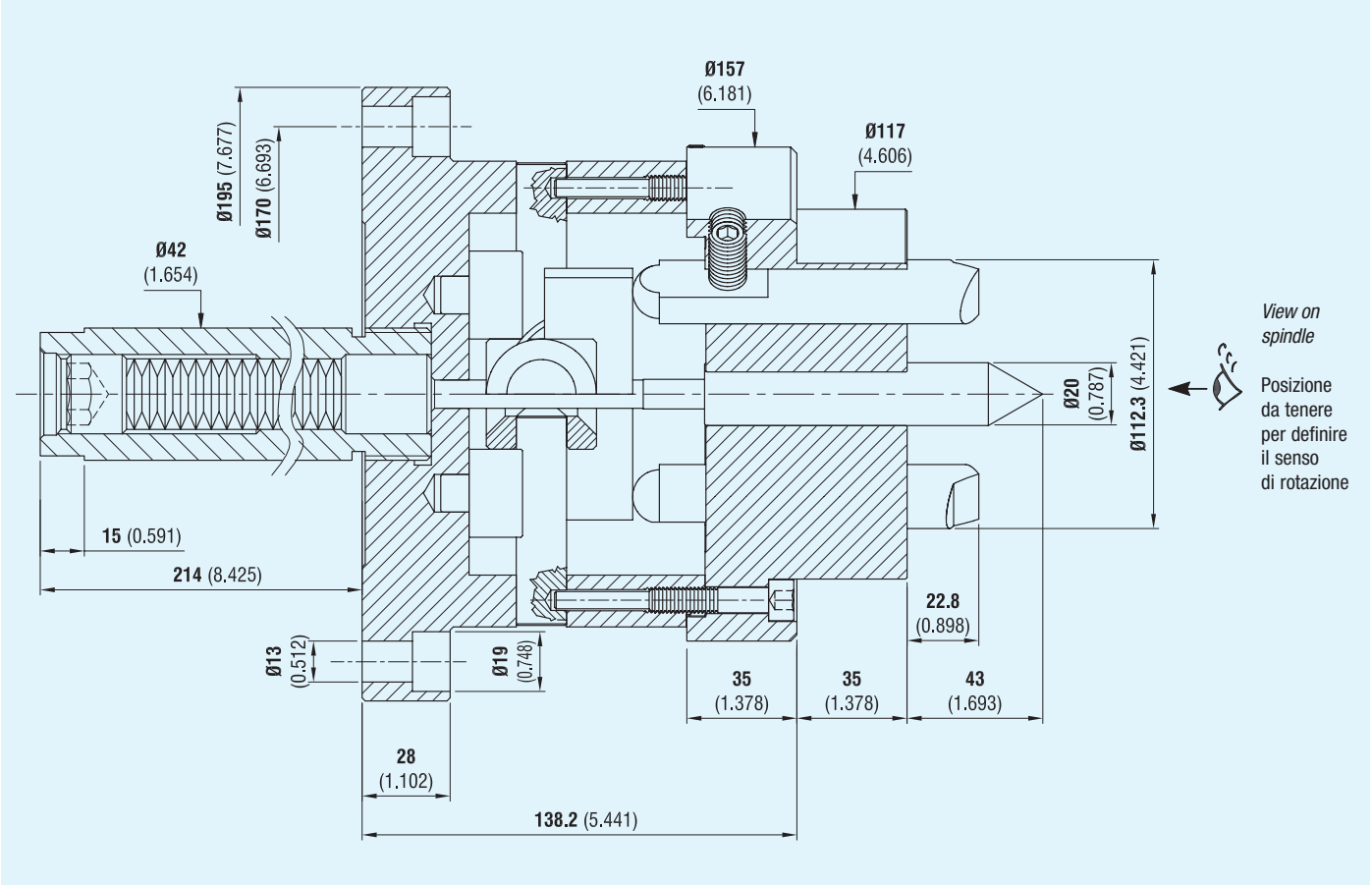
FEATURES:

This face driver is suitable for machining shafts of between 100 (inch. 3.937) and 220 (inch. 8.661) millimetres in diameter.

Machining with large tools can also be carried out from the face driver side; the center point and the driving pins can be replaced without having to remove other face driver components.

CARATTERISTICHE:

Questo trascinatore è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 100 e 220 millimetri. Inoltre permette la tornitura con utensili ingombranti anche dal lato del trascinatore e ha la possibilità di sostituire gli artigli di trascinamento e la punta centrale senza smontare altre parti del trascinatore.



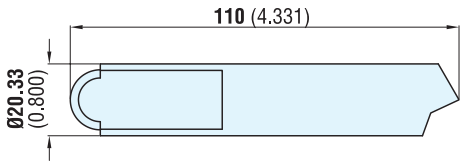
Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760017	070760008

SPARE PARTS FOR FACE DRIVER 100/220 WITH INTEGRAL FLANGE

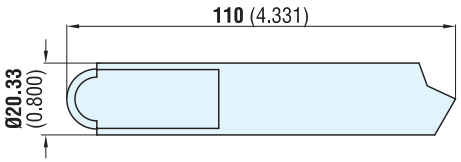
RICAMBI PER TRASCINATORE FRONTALE 100/220 CON ATTACCO A FLANGIA INTEGRALE

SPARE PARTS

Driving pins for 100/220



left rotation / antiorario



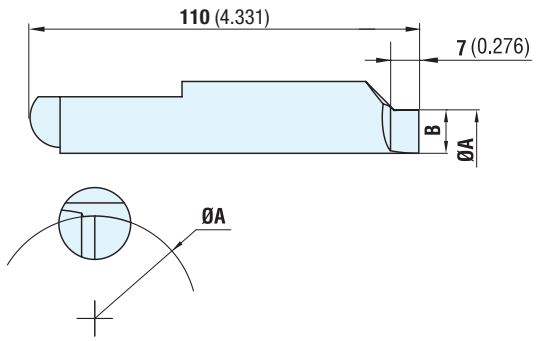
right rotation / orario

RICAMBI

Artigli di trascinamento per 100/220

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080810212	080810213

Lowered driving pins for 100/220

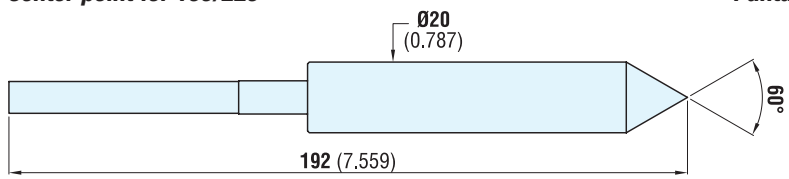


Artigli di trascinamento ribassati per 100/220

Code left rotation Codice antiorario	*Ø A*	*B*
090900084	84 (3.307)	6.2 (0.244)
090900089	89 (3.504)	8.7 (0.343)
090900094	94 (3.701)	11.2 (0.441)
090900099	99 (3.898)	13.7 (0.539)

Code right rotation Codice orario	*Ø A*	*B*
090901084	84 (3.307)	6.2 (0.244)
090901089	89 (3.504)	8.7 (0.343)
090901094	94 (3.701)	11.2 (0.441)
090901099	99 (3.898)	13.7 (0.539)

Center point for 100/220

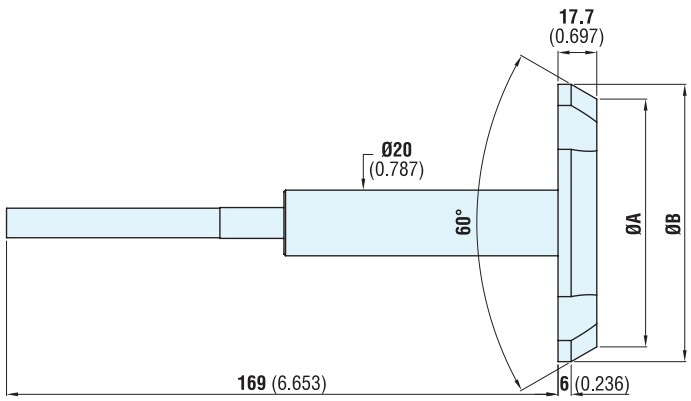


Punta centrale per 100/220

Code Codice
072102739

Center points with slots for 100/220

(for large centers or holes)



Punte centrali a capruggine per 100/220

(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171714001	12.5 (0.492)	26 (1.024)	19.5 (0.768)	24 (0.945)
171714002	17 (0.669)	30.5 (1.201)	24 (0.945)	28.5 (1.122)
171714003	21.5 (0.846)	35 (1.378)	28.5 (1.122)	33 (1.299)
171714004	26 (1.024)	39.5 (1.555)	33 (1.299)	37.5 (1.476)
171714005	30.5 (1.201)	44 (1.732)	37.5 (1.476)	42 (1.654)
171714006	35 (1.378)	48.5 (1.909)	42 (1.654)	46.5 (1.831)
171714007	39.5 (1.555)	53 (2.087)	46.5 (1.831)	51 (2.008)
171714008	44 (1.732)	57.5 (2.264)	51 (2.008)	55.5 (2.185)
171714009	48.5 (1.909)	62 (2.441)	55.5 (2.185)	60 (2.362)
171714010	53 (2.087)	66.5 (2.618)	60 (2.362)	64.5 (2.539)
171714011	57.5 (2.264)	71 (2.795))	64.5 (2.539)	69 (2.717)
171714012	62 (2.441)	75.5 (2.972)	69 (2.717)	73.5 (2.894)
171714013	66.5 (2.618)	80 (3.150)	73.5 (2.894)	78 (3.071)
171714014	71 (2.795)	84.5 (3.327)	78 (3.071)	82.5 (3.248)
171714015	75.5 (2.972)	89 (3.504)	82.5 (3.248)	87 (3.425)
171714016	80 (3.150)	93.5 (3.681)	87 (3.425)	91.5 (3.602)
171714017	84.5 (3.327)	98 (3.858)	91.5 (3.602)	96 (3.780)
171714018	89 (3.504)	102.5 (4.035)	96 (3.780)	100.5 (3.957)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

FACE DRIVER 180/300 WITH INTEGRAL FLANGE

TRASCINATORE FRONTALE 180/300 CON ATTACCO A FLANGIA INTEGRALE

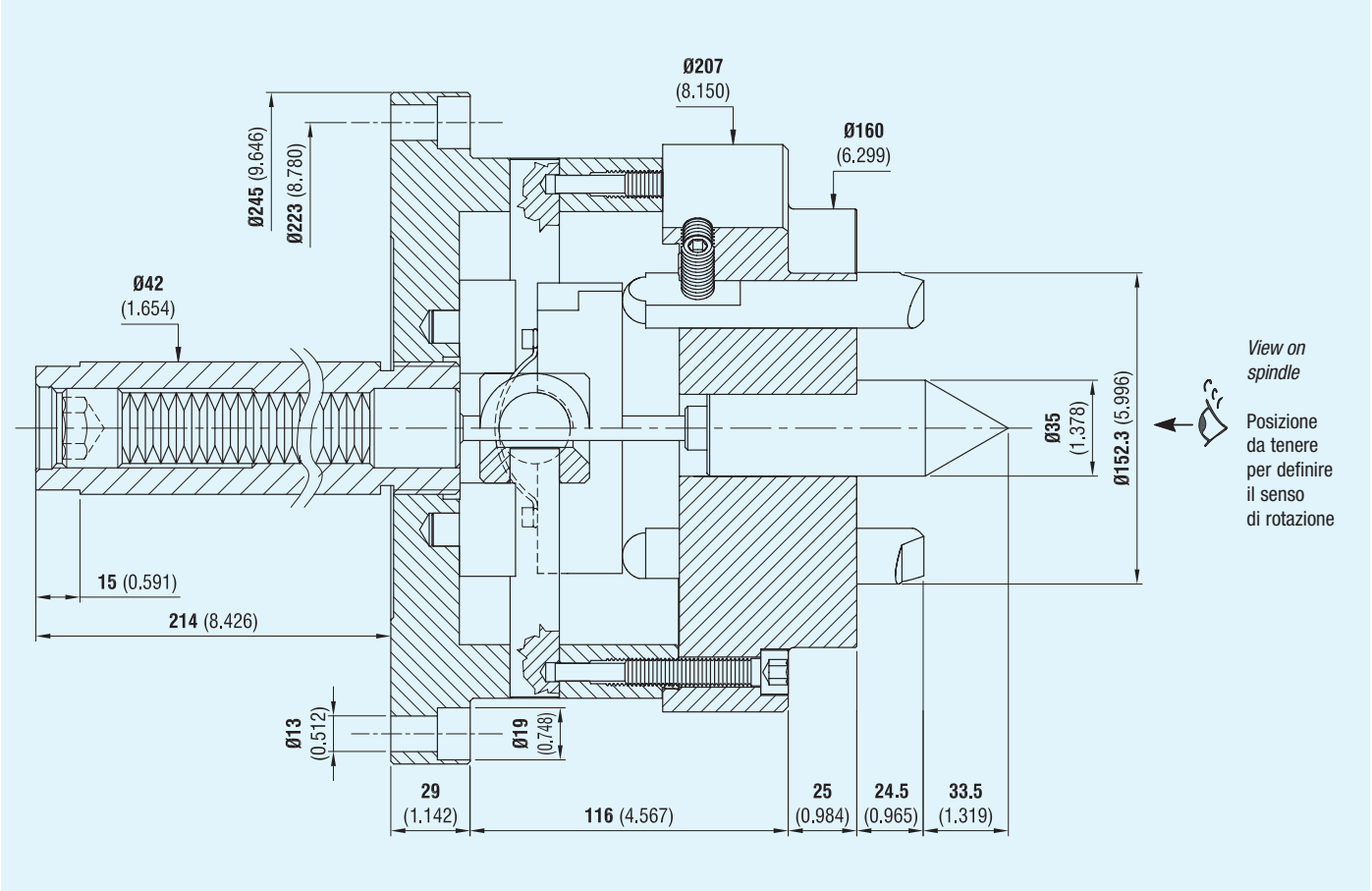
FEATURES:

This face driver is suitable for machining shafts of between 180 (inch. 7.087) and 300 (inch. 11.811) millimetres in diameter.

Machining with large tools can also be carried out from the face driver side; the center point and the driving pins can be replaced without having to remove other face driver components.

CARATTERISTICHE:

Questo trascinatore è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 180 e 300 millimetri. Inoltre permette la tornitura con utensili ingombranti anche dal lato del trascinatore e ha la possibilità di sostituire gli artigli di trascinamento e la punta centrale senza smontare altre parti del trascinatore.



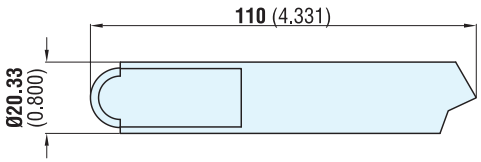
Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760038	070760036

SPARE PARTS FOR FACE DRIVER 180/300 WITH INTEGRAL FLANGE

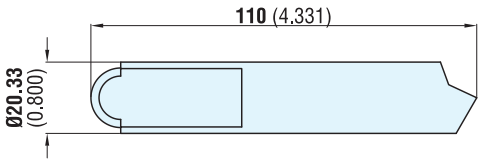
RICAMBI PER TRASCINATORE FRONTALE 180/300 CON ATTACCO A FLANGIA INTEGRALE

SPARE PARTS

Driving pins for 180/300



left rotation / antiorario



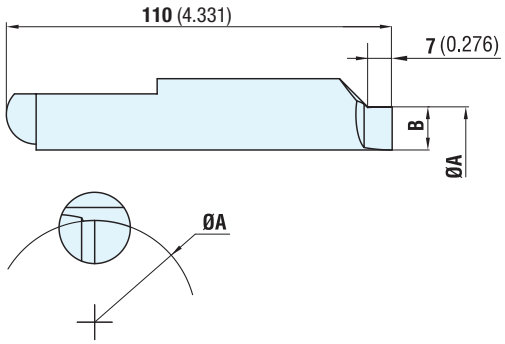
right rotation / orario

RICAMBI

Artigli di trascinamento per 180/300

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080810212	080810213

Lowered driving pins for 180/300

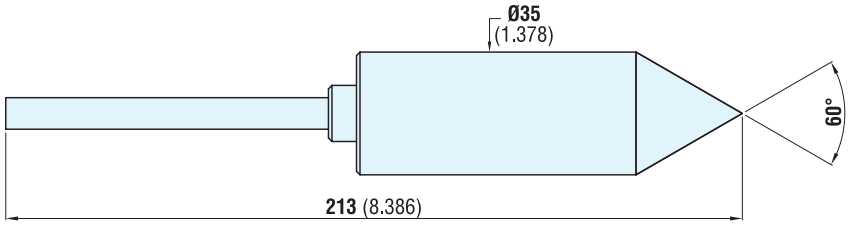


Artigli di trascinamento ribassati per 180/300

Code left rotation Codice antiorario	*Ø A*	*B*
090900084	124 (4.882)	6.2 (0.244)
090900089	129 (5.079)	8.7 (0.343)
090900094	134 (5.276)	11.2 (0.441)
090900099	139 (5.472)	13.7 (0.539)

Code right rotation Codice orario	*Ø A*	*B*
090901084	124 (4.882)	6.2 (0.244)
090901089	129 (5.079)	8.7 (0.343)
090901094	134 (5.276)	11.2 (0.441)
090901099	139 (5.472)	13.7 (0.539)

Center point for 180/300

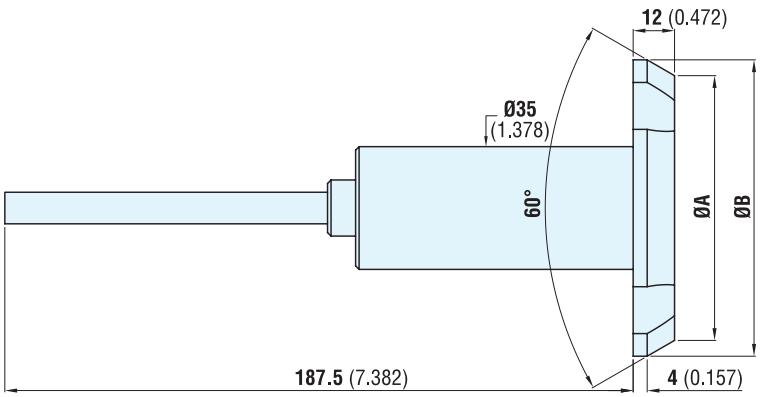


Punta centrale per 180/300

Code Codice
072102761

Center points with slots for 180/300

(for large centers or holes)



Punte centrali a capruggine per 180/300

(per centri grandi o fori)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

***Available on request* / Disponibili su richiesta**

FACE DRIVER 12/50 FLANGED, WITH FIXED CENTER POINT AND DRIVING PINS OPERATED BY HYDRAULIC CYLINDER

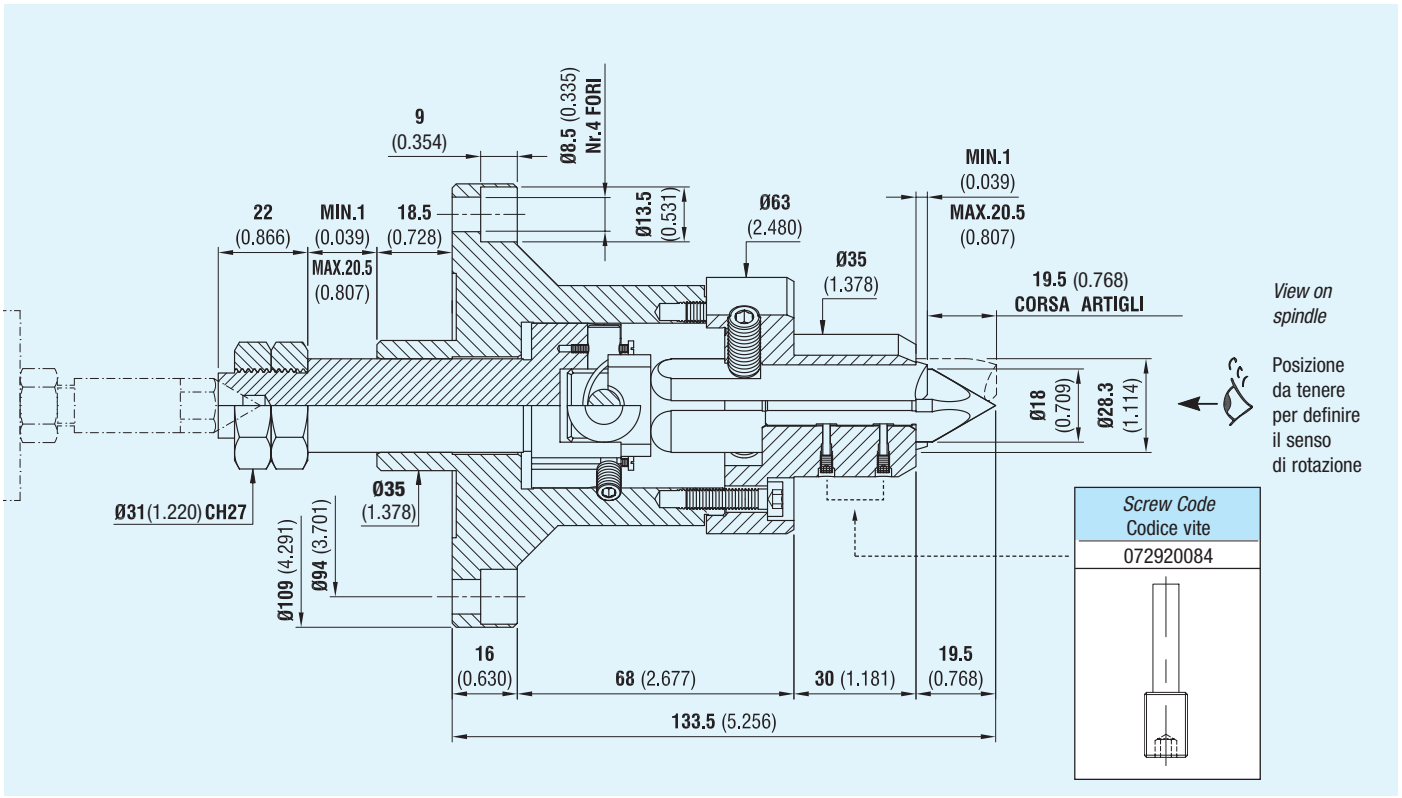
TRASCINATORE FRONTALE 12/50 FLANGIATO, CON PUNTA FISSA E ARTIGLI AZIONATI DA CILINDRO IDRAULICO

FEATURES:

This face driver with interchangeable fixed centre point hydraulically operated, is suitable for machining shafts of between 12 (inch. 0.472) and 50 (inch. 1.969) millimetres in diameter and it has been manufactured to obtain in turning too, machining of shafts with error of concentricity max 0.020.

CARATTERISTICHE:

Questo trascinatore con punta fissa intercambiabile ad azionamento idraulico è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 12 e 50 mm, ed è stato realizzato per ottenere, anche in tornitura, lavorazioni di alberi con errore di concentricità max 0.020.



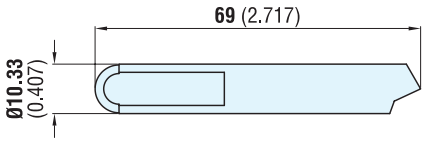
Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760040	070760041

SPARE PARTS FOR FACE DRIVER 12/50

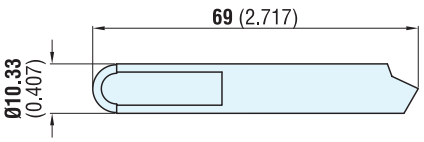
RICAMBI PER TRASCINATORE 12/50

SPARE PARTS

Driving pins for 12/50



left rotation / antiorario



right rotation / orario

RICAMBI

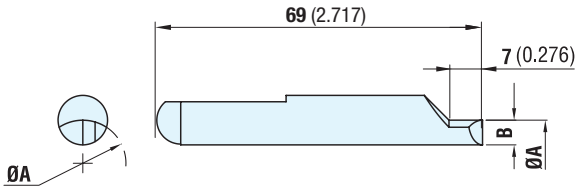
Artigli di trascinamento per 12/50

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080809002	080809003

Lowered driving pins for 12/50

WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

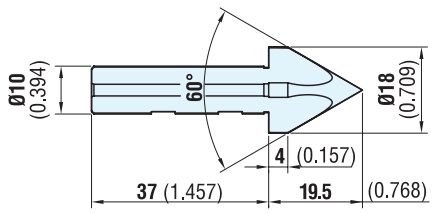


Artigli di trascinamento ribassati per 12/50

Code left rotation Codice antiorario	*A*	*B*
090909012	12 (0.472)	2.1 (0.083)
090909013	13 (0.512)	2.6 (0.102)
090909014	14 (0.551)	3.1 (0.122)
090909015	15 (0.591)	3.6 (0.142)
090909016	16 (0.630)	4.1 (0.161)
090909017	17 (0.669)	4.6 (0.181)
090909018	18 (0.709)	5.1 (0.201)
090909019	19 (0.748)	5.6 (0.220)
090909020	20 (0.787)	6.1 (0.240)
090909021	21 (0.827)	6.6 (0.260)
090909022	22 (0.866)	7.1 (0.280)
090909023	23 (0.906)	7.6 (0.299)
090909024	24 (0.945)	8.1 (0.319)
090909025	25 (0.984)	8.6 (0.339)

Code right rotation Codice orario	*A*	*B*
090909112	12 (0.472)	2.1 (0.083)
090909113	13 (0.512)	2.6 (0.102)
090909114	14 (0.551)	3.1 (0.122)
090909115	15 (0.591)	3.6 (0.142)
090909116	16 (0.630)	4.1 (0.161)
090909117	17 (0.669)	4.6 (0.181)
090909118	18 (0.709)	5.1 (0.201)
090909119	19 (0.748)	5.6 (0.220)
090909120	20 (0.787)	6.1 (0.240)
090909121	21 (0.827)	6.6 (0.260)
090909122	22 (0.866)	7.1 (0.280)
090909123	23 (0.906)	7.6 (0.299)
090909124	24 (0.945)	8.1 (0.319)
090909125	25 (0.984)	8.6 (0.339)

Fixed center point for 12/50

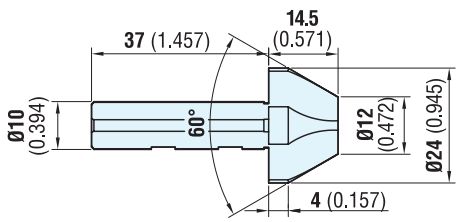


Punta fissa centrale per 12/50

Code Codice
072102768

Fixed center point with slots for 12/50

(for large centers or holes)



Punta fissa centrale a capruggine per 12/50

(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*For centers or "F" holes* Per centri o fori "F"	
	from / dal Ø	*to* / al Ø
179200101	15 (0.591)	22 (0.866)

FACE DRIVER 15/55 FLANGED, WITH FIXED CENTER POINT AND DRIVING PINS OPERATED BY HYDRAULIC CYLINDER

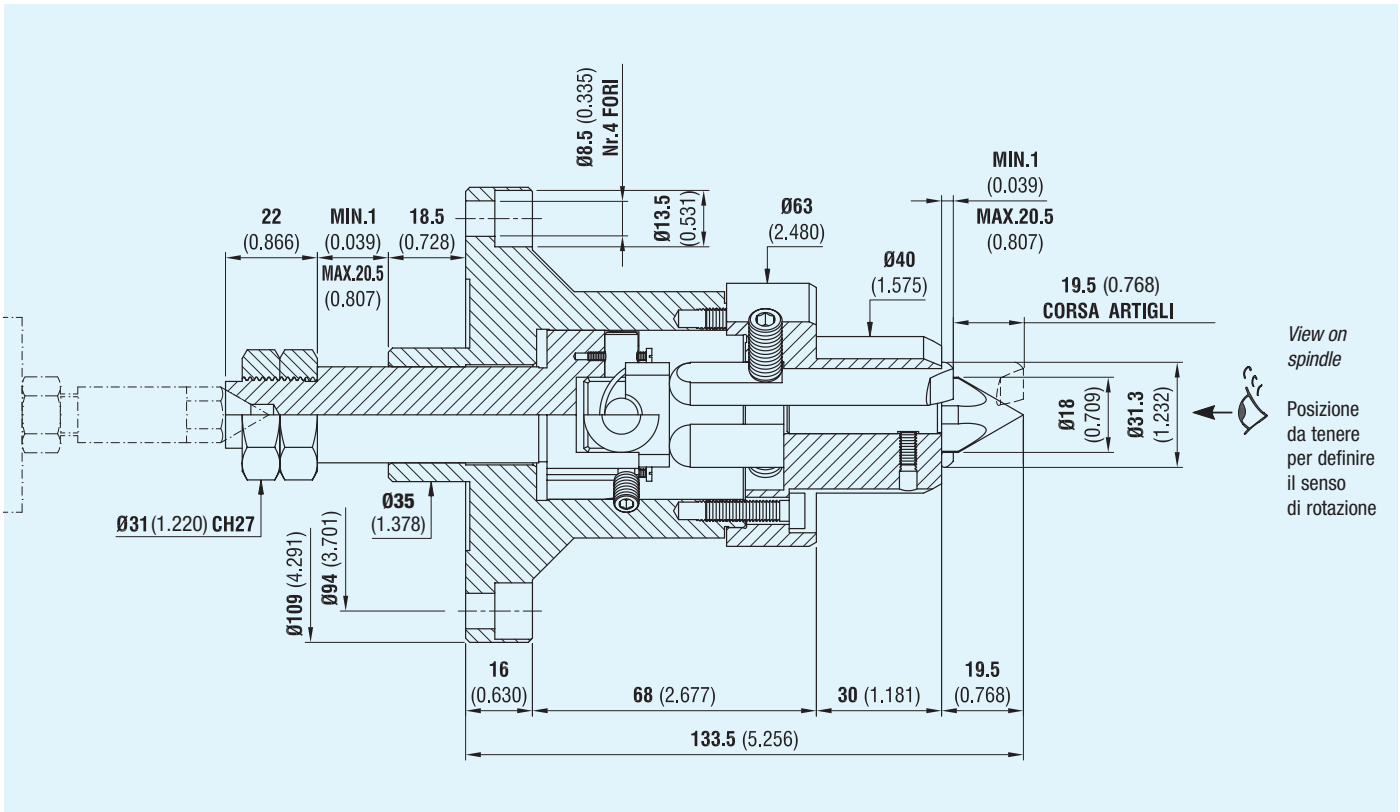
TRASCINATORE FRONTALE 15/55 FLANGIATO, CON PUNTA FISSA E ARTIGLI AZIONATI DA CILINDRO IDRAULICO

FEATURES:

This face driver with interchangeable fixed centre point hydraulically operated, is suitable for machining shafts of between 15 (inch. 0.591) and 55 (inch. 2.165) mm, in diameter and it has been manufactured to obtain in turning too, machining of shafts with error of concentricity max 0.020.

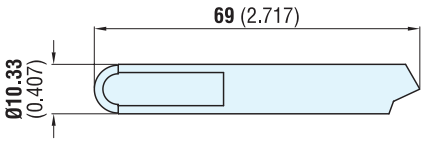
CARATTERISTICHE:

Questo trascinatore con punta fissa intercambiabile ad azionamento idraulico è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 15 e 55 mm, ed è stato realizzato per ottenere, anche in tornitura, lavorazioni di alberi con errore di concentricità max 0.020.

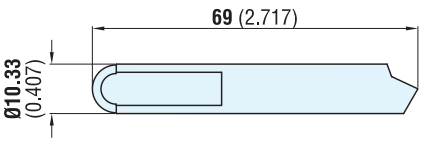


Code right rotation Codice orario	*Code left rotation* Codice antiorario
070752410	070752411

SPARE PARTS
Driving pins for 15/55



left rotation / antiorario



right rotation / orario

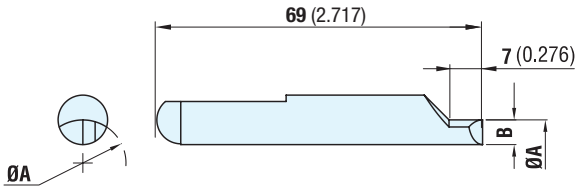
RICAMBI
Artigli di trascinamento per 15/55

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080809002	080809003

Lowered driving pins for 15/55

WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

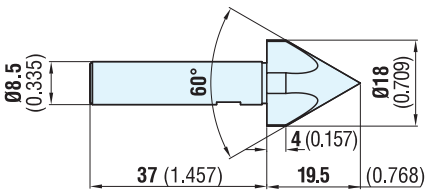


Artigli di trascinamento ribassati per 15/55

Code left rotation Codice antiorario	*Ø A*	*B*
090909012	15 (0.591)	2.1 (0.083)
090909013	16 (0.630)	2.6 (0.102)
090909014	17 (0.669)	3.1 (0.122)
090909015	18 (0.709)	3.6 (0.142)
090909016	19 (0.748)	4.1 (0.161)
090909017	20 (0.787)	4.6 (0.181)
090909018	21 (0.827)	5.1 (0.201)
090909019	22 (0.866)	5.6 (0.220)
090909020	23 (0.906)	6.1 (0.240)
090909021	24 (0.945)	6.6 (0.260)
090909022	25 (0.984)	7.1 (0.280)
090909023	26 (1.024)	7.6 (0.299)
090909024	27 (1.063)	8.1 (0.319)
090909025	28 (1.102)	8.6 (0.339)

Code right rotation Codice orario	*Ø A*	*B*
090909112	15 (0.591)	2.1 (0.083)
090909113	16 (0.630)	2.6 (0.102)
090909114	17 (0.669)	3.1 (0.122)
090909115	18 (0.709)	3.6 (0.142)
090909116	19 (0.748)	4.1 (0.161)
090909117	20 (0.787)	4.6 (0.181)
090909118	21 (0.827)	5.1 (0.201)
090909119	22 (0.866)	5.6 (0.220)
090909120	23 (0.906)	6.1 (0.240)
090909121	24 (0.945)	6.6 (0.260)
090909122	25 (0.984)	7.1 (0.280)
090909123	26 (1.024)	7.6 (0.299)
090909124	27 (1.063)	8.1 (0.319)
090909125	28 (1.102)	8.6 (0.339)

Fixed center point for 15/55

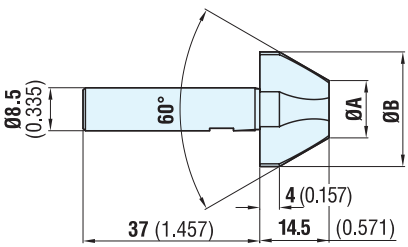


Punta fissa centrale per 15/55

Code Codice
072102769

Fixed center point with slots for 15/55

(for large centers or holes)



Punta fissa centrale a capruggine per 15/55

(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171711018	12 (0.472)	24 (0.945)	15 (0.591)	23 (0.906)
171711021	18 (0.709)	30 (1.181)	21 (0.827)	26 (1.024)

FACE DRIVER 20/60 FLANGED, WITH FIXED CENTER POINT AND DRIVING PINS OPERATED BY HYDRAULIC CYLINDER

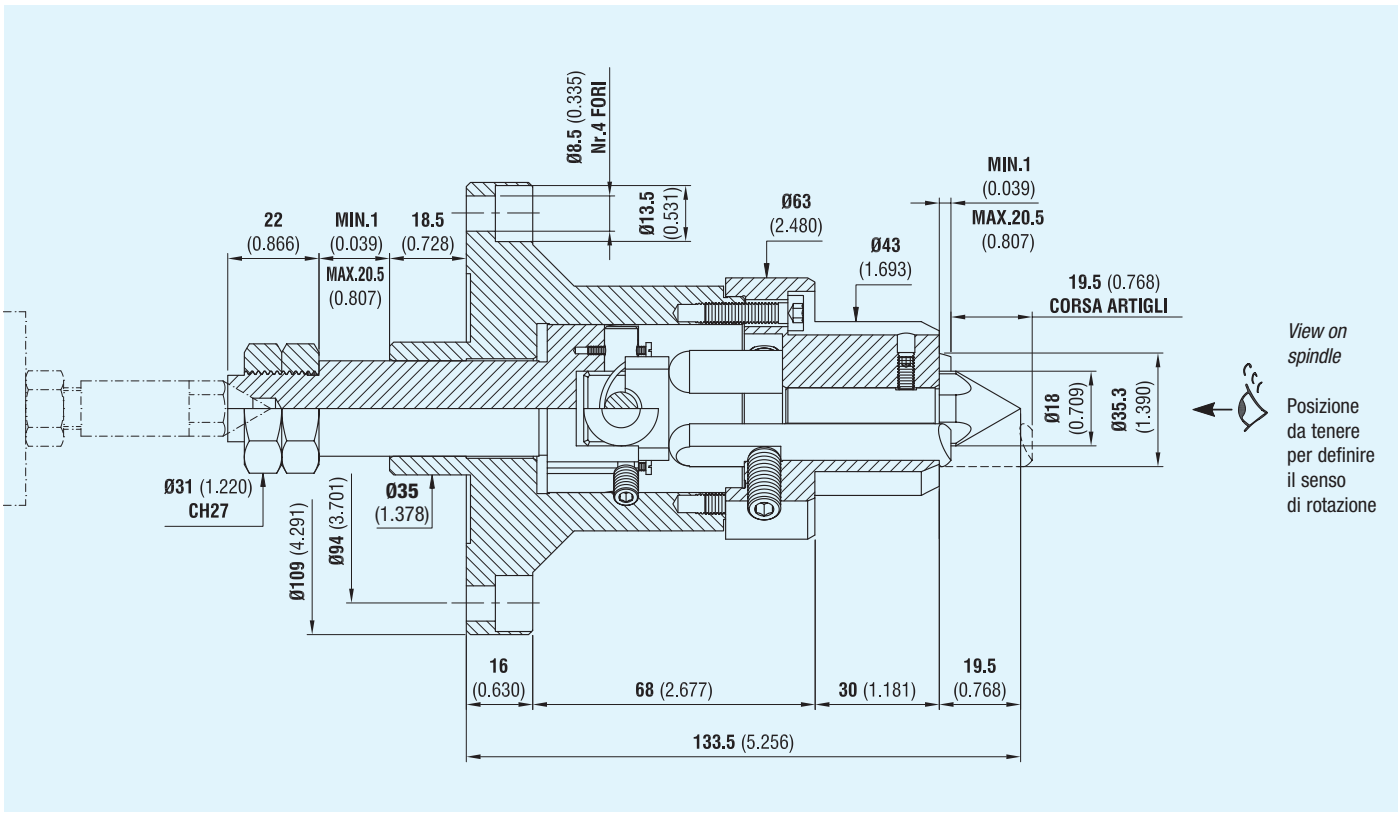
TRASCINATORE FRONTALE 20/60 FLANGIATO, CON PUNTA FISSA E ARTIGLI AZIONATI DA CILINDRO IDRAULICO

FEATURES:

This face driver with interchangeable fixed centre point hydraulically operated, is suitable for machining shafts of between 20 (inch. 0.787) and 60 (inch. 2.362) millimetres in diameter and it has been manufactured to obtain in turning too, machining of shafts with error of concentricity max 0.020.

CARATTERISTICHE:

Questo trascinatore con punta fissa intercambiabile ad azionamento idraulico è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 20 e 60 mm, ed è stato realizzato per ottenere, anche in tornitura, lavorazioni di alberi con errore di concentricità max 0.020.



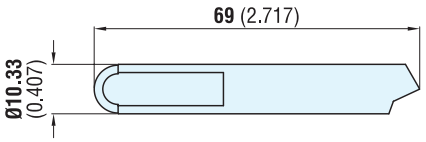
Code right rotation Codice orario	*Code left rotation* Codice antiorario
070752412	070752413

SPARE PARTS FOR FACE DRIVER 20/60

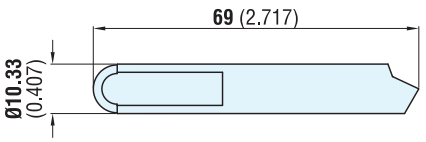
RICAMBI PER TRASCINATORE 20/60

SPARE PARTS

Driving pins for 20/60



left rotation / antiorario



right rotation / orario

RICAMBI

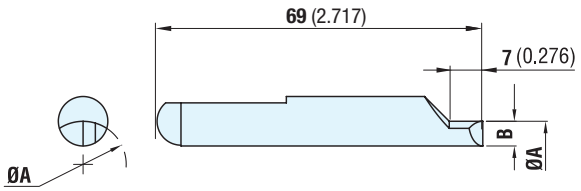
Artigli di trascinamento per 20/60

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080809002	080809003

Lowered driving pins for 20/60

WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

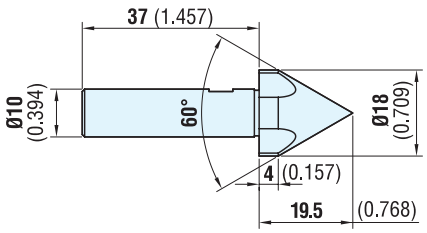


Artigli di trascinamento ribassati per 20/60

Code left rotation Codice antiorario	*Ø A*	*B*
090909012	19 (0.748)	2.1 (0.083)
090909013	20 (0.787)	2.6 (0.102)
090909014	21 (0.827)	3.1 (0.122)
090909015	22 (0.866)	3.6 (0.142)
090909016	23 (0.906)	4.1 (0.161)
090909017	24 (0.945)	4.6 (0.181)
090909018	25 (0.984)	5.1 (0.201)
090909019	26 (1.024)	5.6 (0.220)
090909020	27 (1.063)	6.1 (0.240)
090909021	28 (1.102)	6.6 (0.260)
090909022	29 (1.142)	7.1 (0.280)
090909023	30 (1.181)	7.6 (0.299)
090909024	31 (1.220)	8.1 (0.319)
090909025	32 (1.260)	8.6 (0.339)

Code right rotation Codice orario	*Ø A*	*B*
090909112	19 (0.748)	2.1 (0.083)
090909113	20 (0.787)	2.6 (0.102)
090909114	21 (0.827)	3.1 (0.122)
090909115	22 (0.866)	3.6 (0.142)
090909116	23 (0.906)	4.1 (0.161)
090909117	24 (0.945)	4.6 (0.181)
090909118	25 (0.984)	5.1 (0.201)
090909119	26 (1.024)	5.6 (0.220)
090909120	27 (1.063)	6.1 (0.240)
090909121	28 (1.102)	6.6 (0.260)
090909122	29 (1.142)	7.1 (0.280)
090909123	30 (1.181)	7.6 (0.299)
090909124	31 (1.220)	8.1 (0.319)
090909125	32 (1.260)	8.6 (0.339)

Fixed center point for 20/60

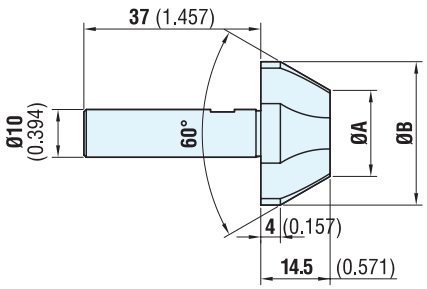


Punta fissa centrale per 20/60

Code Codice
072102770

Fixed center point with slots for 20/60

(for large centers or holes)



Punta fissa centrale a capruggine per 20/60

(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal *Ø*	*to* / al *Ø*
171712021	12 (0.472)	24 (0.945)	15 (0.591)	23 (0.906)
171712023	15 (0.591)	27 (1.063)	18 (0.709)	26 (1.024)
171712025	18 (0.709)	30 (1.181)	21 (0.827)	29 (1.142)
171712028	24 (0.945)	36 (1.417)	26 (1.024)	31 (1.220)

FACE DRIVER 20/70 FLANGED, WITH FIXED CENTER POINT AND DRIVING PINS OPERATED BY HYDRAULIC CYLINDER

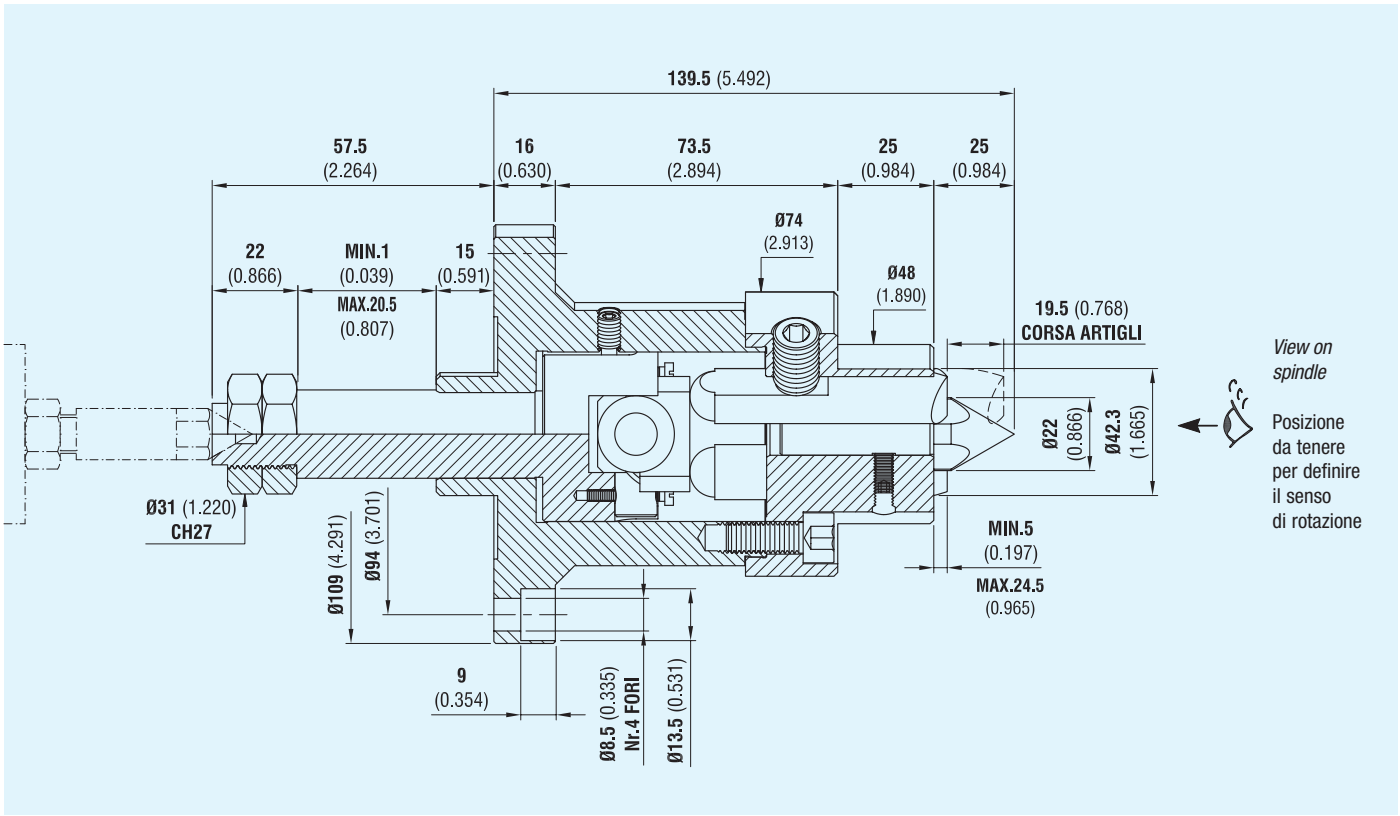
TRASCINATORE FRONTALE 20/70 FLANGIATO, CON PUNTA FISSA E ARTIGLI AZIONATI DA CILINDRO IDRAULICO

FEATURES:

This face driver with interchangeable fixed centre point hydraulically operated, is suitable for machining shafts of between 20 (inch. 0.787) and 70 (inch. 2.756) millimetres in diameter and it has been manufactured to obtain in turning too, machining of shafts with error of concentricity max 0.020.

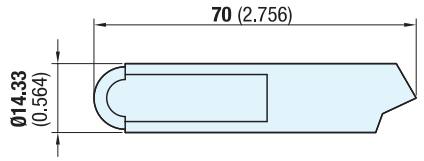
CARATTERISTICHE:

Questo trascinatore con punta fissa intercambiabile ad azionamento idraulico è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 20 e 70 mm, ed è stato realizzato per ottenere, anche in tornitura, lavorazioni di alberi con errore di concentricità max 0.020.

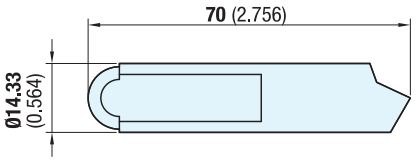


Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760042	070760043

SPARE PARTS
Driving pins for 20/70



left rotation / antiorario



right rotation / orario

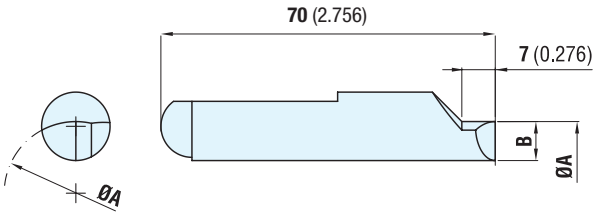
RICAMBI
Artigli di trascinamento per 20/70

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080809004	080809005

Lowered driving pins for 20/70

WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

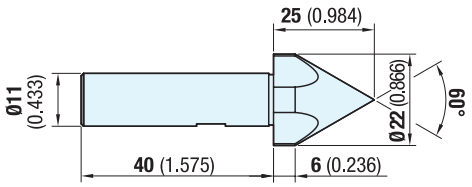


Artigli di trascinamento ribassati per 20/70

Code left rotation Codice antiorario	*Ø A*	*B*
090909219	19 (0.748)	2.7 (0.106)
090909220	20 (0.787)	3.2 (0.126)
090909221	21 (0.827)	3.7 (0.146)
090909222	22 (0.866)	4.2 (0.165)
090909223	23 (0.906)	4.7 (0.185)
090909224	24 (0.945)	5.2 (0.205)
090909225	25 (0.984)	5.7 (0.224)
090909226	26 (1.024)	6.2 (0.244)
090909227	27 (1.063)	6.7 (0.264)
090909228	28 (1.102)	7.2 (0.283)
090909229	29 (1.142)	7.7 (0.303)
090909230	30 (1.181)	8.2 (0.323)
090909231	31 (1.220)	8.7 (0.343)
090909232	32 (1.260)	9.2 (0.362)
090909233	33 (1.299)	9.7 (0.382)
090909234	34 (1.339)	10.2 (0.402)
090909235	35 (1.378)	10.7 (0.421)
090909236	36 (1.417)	11.2 (0.441)

Code right rotation Codice orario	*Ø A*	*B*
090909319	19 (0.748)	2.7 (0.106)
090909320	20 (0.787)	3.2 (0.126)
090909321	21 (0.827)	3.7 (0.146)
090909322	22 (0.866)	4.2 (0.165)
090909323	23 (0.906)	4.7 (0.185)
090909324	24 (0.945)	5.2 (0.205)
090909325	25 (0.984)	5.7 (0.224)
090909326	26 (1.024)	6.2 (0.244)
090909327	27 (1.063)	6.7 (0.264)
090909328	28 (1.102)	7.2 (0.283)
090909329	29 (1.142)	7.7 (0.303)
090909330	30 (1.181)	8.2 (0.323)
090909331	31 (1.220)	8.7 (0.343)
090909332	32 (1.260)	9.2 (0.362)
090909333	33 (1.299)	9.7 (0.382)
090909334	34 (1.339)	10.2 (0.402)
090909335	35 (1.378)	10.7 (0.421)
090909336	36 (1.417)	11.2 (0.441)

Fixed center point for 20/70

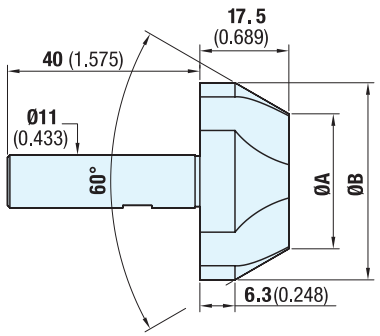


Punta fissa centrale per 20/70

Code Codice
072102771

Fixed center point with slots for 20/70

(for large centers or holes)



Punta fissa centrale a capruggine per 20/70

(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
179200114	17 (0.669)	30 (1.181)	19 (0.748)	29 (1.142)
179200116	23 (0.906)	36 (1.417)	25 (0.984)	35 (1.378)

FACE DRIVER 45/120 FLANGED, WITH FIXED CENTER POINT AND DRIVING PINS OPERATED BY HYDRAULIC CYLINDER

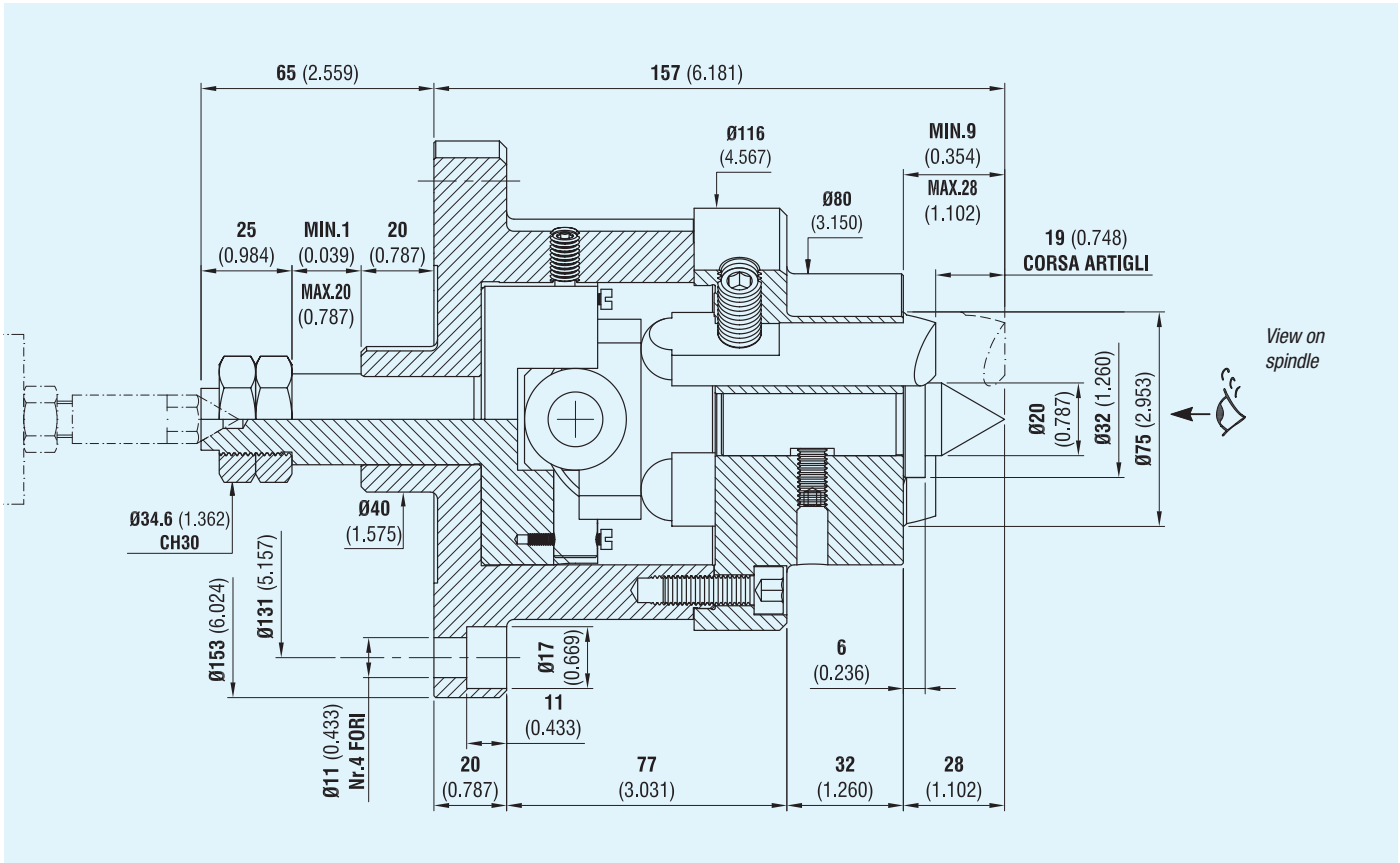
TRASCINATORE FRONTALE 45/120 FLANGIATO, CON PUNTA FISSA E ARTIGLI AZIONATI DA CILINDRO IDRAULICO

FEATURES:

This face driver with interchangeable fixed centre point hydraulically operated, is suitable for machining shafts of between 45 (inch. 1.772) and 120 (inch. 4.724) millimetres in diameter and it has been manufactured to obtain in turning too, machining of shafts with error of concentricity max 0.020.

CARATTERISTICHE:

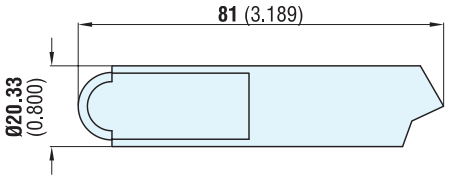
Questo trascinatore con punta fissa intercambiabile ad azionamento idraulico è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 45 e 120 mm, ed è stato realizzato per ottenere, anche in tornitura, lavorazioni di alberi con errore di concentricità max 0.020.



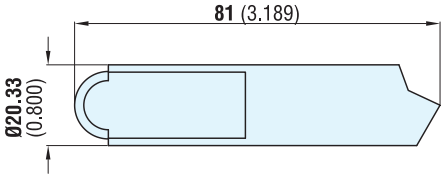
Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760044	070760045

SPARE PARTS

Driving pins for 45/120



left rotation / antiorario



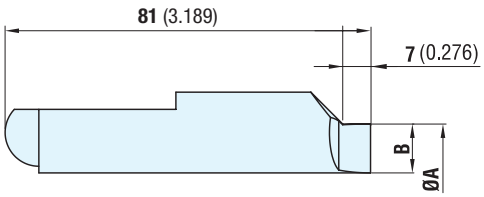
right rotation / orario

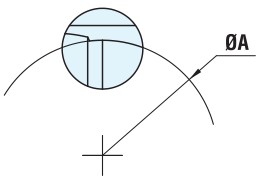
RICAMBI

Artigli di trascinamento per 45/120

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080845017	080845016

Lowered driving pins for 45/120



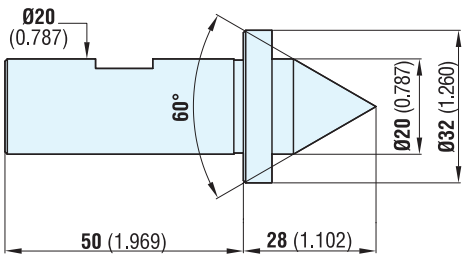


Artigli di trascinamento ribassati per 45/120

Code left rotation Codice antiorario	*Ø A*	*B*
090945444	44 (1.732)	4.8 (0.189)
090945445	45 (1.772)	5.3 (0.209)
090945446	46 (1.811)	5.8 (0.228)
090945447	47 (1.850)	6.3 (0.248)
090945448	48 (1.890)	6.8 (0.268)
090945449	49 (1.929)	7.3 (0.287)
090945450	50 (1.969)	7.8 (0.307)
090945451	51 (2.008)	8.3 (0.327)
090945452	52 (2.047)	8.8 (0.346)
090945453	53 (2.087)	9.3 (0.366)
090945454	54 (2.126)	9.8 (0.386)
090945455	55 (2.165)	10.3 (0.406)
090945456	56 (2.205)	10.8 (0.425)
090945457	57 (2.244)	11.3 (0.445)
090945458	58 (2.283)	11.8 (0.465)
090945459	59 (2.323)	12.3 (0.484)
090945460	60 (2.362)	12.8 (0.504)
090945461	61 (2.402)	13.3 (0.524)
090945462	62 (2.441)	13.8 (0.543)
090945463	63 (2.480)	14.3 (0.563)
090945464	64 (2.520)	14.8 (0.583)
090945465	65 (2.559)	15.3 (0.602)

Code right rotation Codice orario	*Ø A*	*B*
090945544	44 (1.732)	4.8 (0.189)
090945545	45 (1.772)	5.3 (0.209)
090945546	46 (1.811)	5.8 (0.228)
090945547	47 (1.850)	6.3 (0.248)
090945548	48 (1.890)	6.8 (0.268)
090945549	49 (1.929)	7.3 (0.287)
090945550	50 (1.969)	7.8 (0.307)
090945551	51 (2.008)	8.3 (0.327)
090945552	52 (2.047)	8.8 (0.346)
090945553	53 (2.087)	9.3 (0.366)
090945554	54 (2.126)	9.8 (0.386)
090945555	55 (2.165)	10.3 (0.406)
090945556	56 (2.205)	10.8 (0.425)
090945557	57 (2.244)	11.3 (0.445)
090945558	58 (2.283)	11.8 (0.465)
090945559	59 (2.323)	12.3 (0.484)
090945560	60 (2.362)	12.8 (0.504)
090945561	61 (2.402)	13.3 (0.524)
090945562	62 (2.441)	13.8 (0.543)
090945563	63 (2.480)	14.3 (0.563)
090945564	64 (2.520)	14.8 (0.583)
090945565	65 (2.559)	15.3 (0.602)

Fixed center point for 45/120

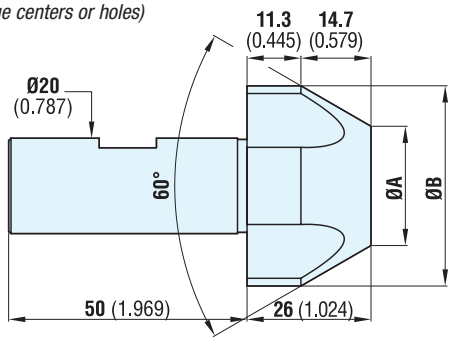


Punta fissa centrale per 45/120

Code Codice
072920104

Fixed center point with slots for 45/120

(for large centers or holes)



Punta fissa centrale a capruggine per 45/120

(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171713031	15 (0.591)	32 (1.260)	18 (0.709)	31 (1.220)
171713032	25 (0.984)	42 (1.654)	28 (1.102)	41 (1.614)
171713033	35 (1.378)	52 (2.047)	38 (1.496)	51 (2.008)
171713034	45 (1.772)	62 (2.441)	48 (1.890)	61 (2.402)
171713035	55 (2.165)	72 (2.835)	58 (2.283)	71 (2.795)

FACE DRIVER 100/220 FLANGED, WITH FIXED CENTER POINT AND DRIVING PINS OPERATED BY HYDRAULIC CYLINDER

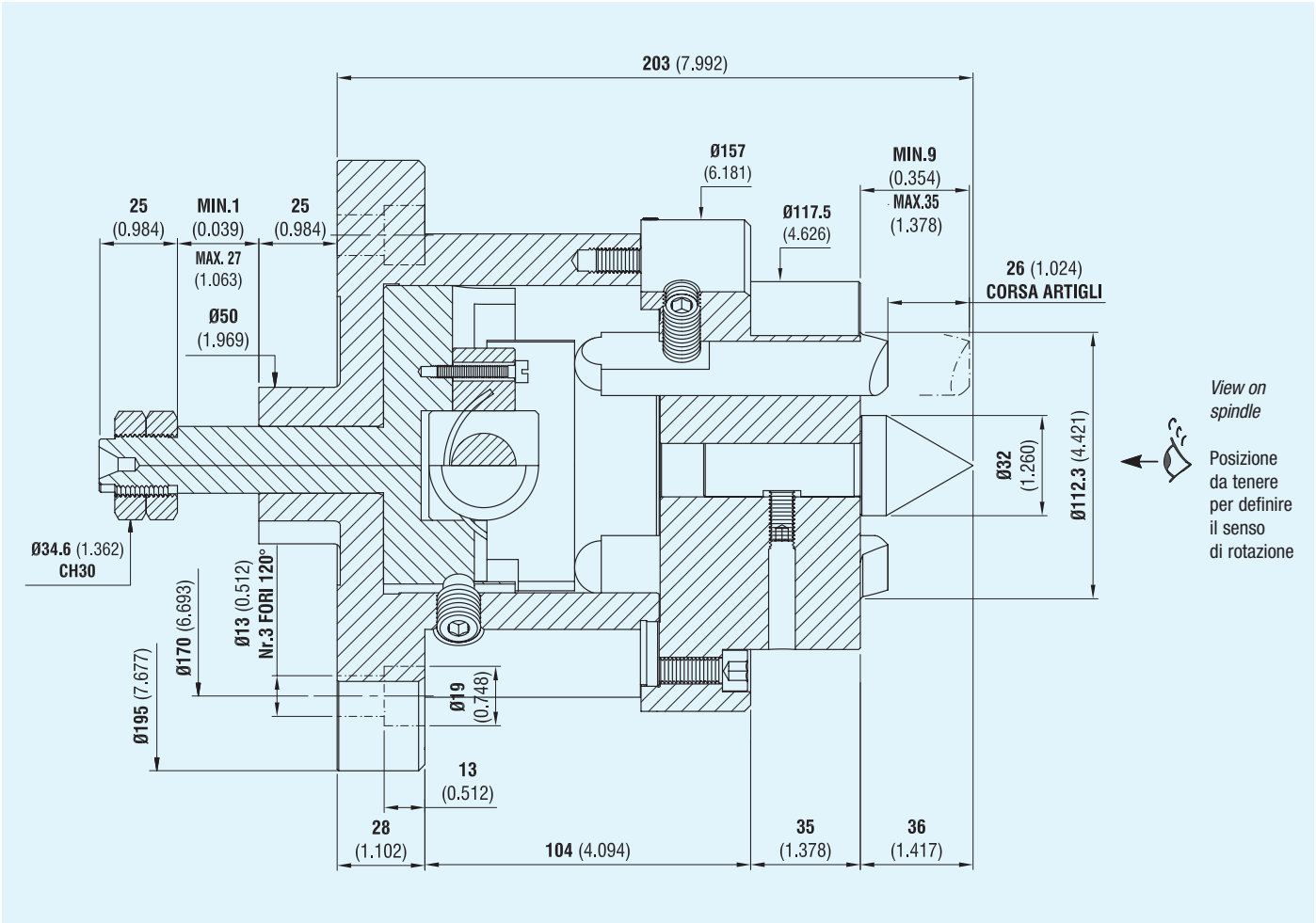
TRASCINATORE FRONTALE 100/220 FLANGIATO, CON PUNTA FISSA E ARTIGLI AZIONATI DA CILINDRO IDRAULICO

FEATURES:

This face driver with interchangeable fixed centre point hydraulically operated, is suitable for machining shafts of between 100 (inch. 3.937) and 220 (inch. 8.661) millimetres in diameter and it has been manufactured to obtain in turning too, machining of shafts with error of concentricity max 0.020.

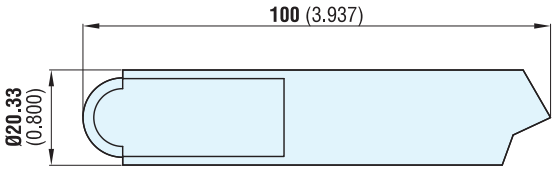
CARATTERISTICHE:

Questo trascinatore con punta fissa intercambiabile ad azionamento idraulico è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 100 e 220 mm, ed è stato realizzato per ottenere, anche in tornitura, lavorazioni di alberi con errore di concentricità max 0.020.



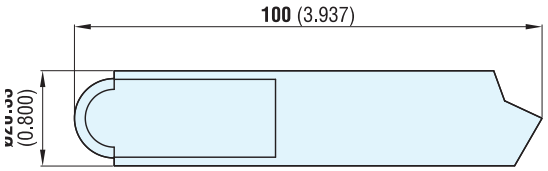
Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760046	070760047

SPARE PARTS
Driving pins for 100/220



left rotation / antiorario

RICAMBI
Artigli di trascinamento per 100/220

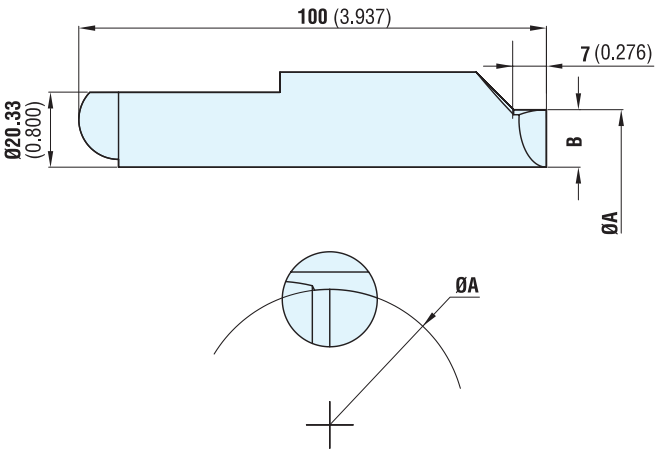


right rotation / orario

Code left rotation Codice antiorario
080810215

Code right rotation Codice orario
080810214

Lowered driving pins for 100/220

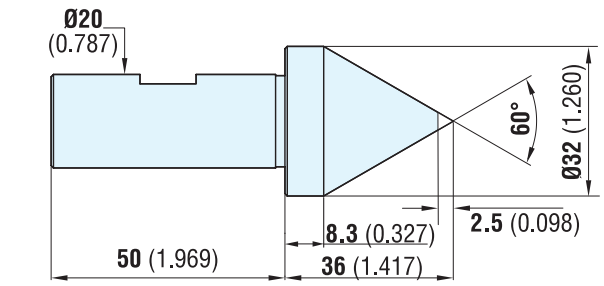


Artigli di trascinamento ribassati per 100/220

Code left rotation Codice antiorario	*Ø A*	*B*
090909084	84 (3.307)	6.3 (0.248)
090909089	89 (3.504)	8.8 (0.346)
090909094	94 (3.701)	11.3 (0.445)
090909099	99 (3.898)	13.8 (0.543)

Code right rotation Codice orario	*Ø A*	*B*
090909184	84 (3.307)	6.3 (0.248)
090909189	89 (3.504)	8.8 (0.346)
090909194	94 (3.701)	11.3 (0.445)
090909199	99 (3.898)	13.8 (0.543)

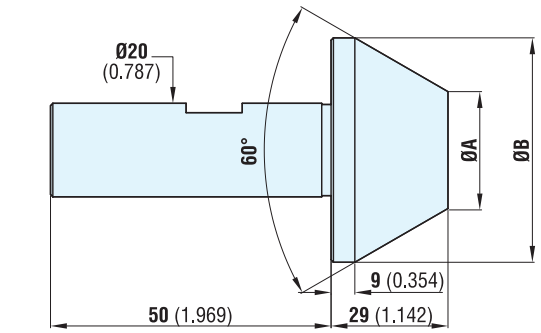
Fixed center point for 100/220



Punta fissa centrale per 100/220

Code Codice
072102765

Fixed center point with slots for 100/220
(for large centers or holes)



Punta fissa centrale a capruggine per 100/220
(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171714019	25 (0.984)	48 (1.890)	28 (1.102)	47 (1.850)
171714020	42 (1.654)	65 (2.559)	39 (1.535)	64 (2.520)
171714021	60 (2.362)	83 (3.268)	57 (2.244)	82 (3.228)
171714022	78 (3.071)	101 (3.976)	75 (2.953)	100 (3.937)

FACE DRIVER 180/300 FLANGED, WITH FIXED CENTER POINT AND DRIVING PINS OPERATED BY HYDRAULIC CYLINDER

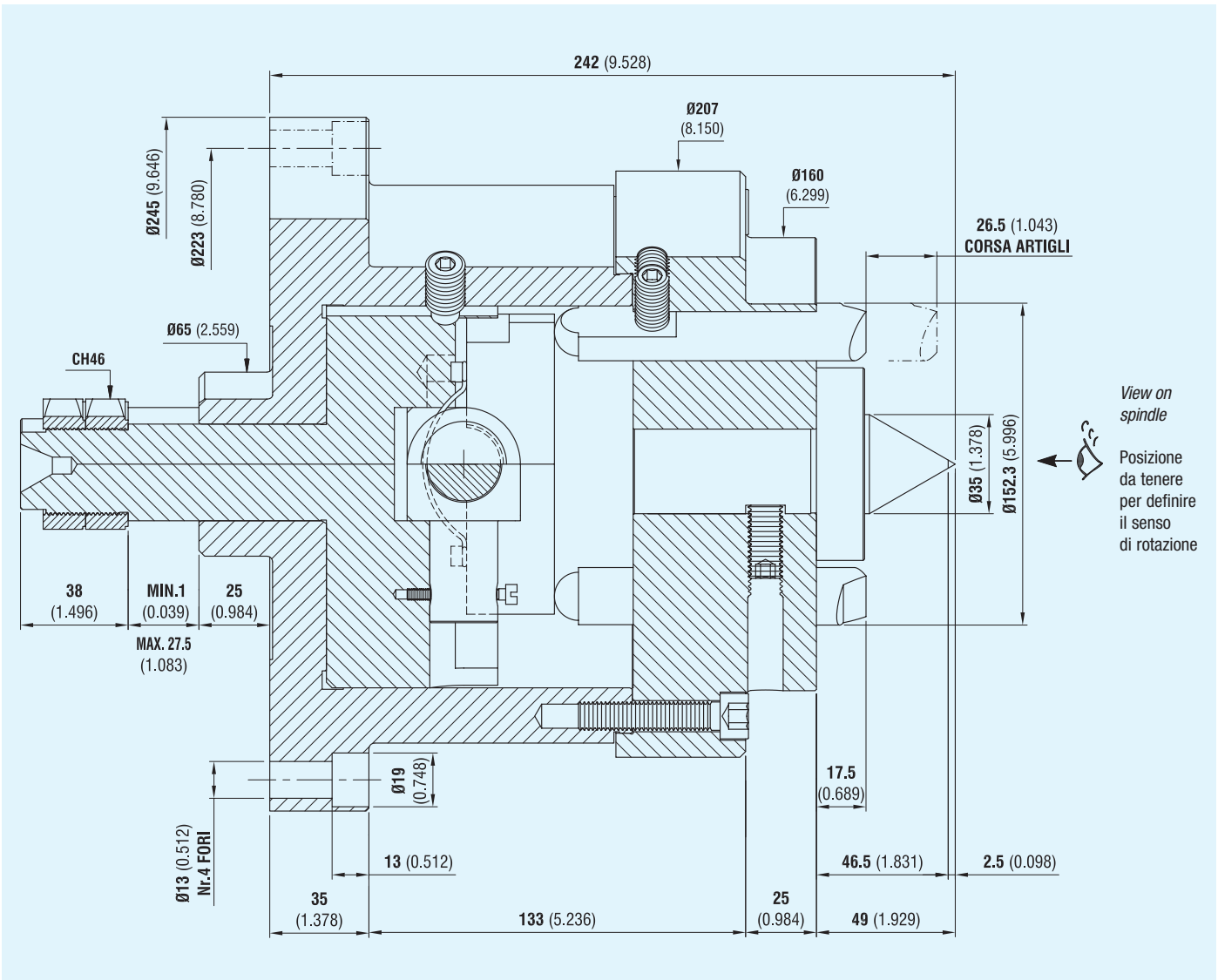
TRASCINATORE FRONTALE 180/300 FLANGIATO, CON PUNTA FISSA E ARTIGLI AZIONATI DA CILINDRO IDRAULICO

FEATURES:

This face driver with interchangeable fixed centre point hydraulically operated, is suitable for machining shafts of between 180 (inch. 7.087) and 300 (inch. 11.811) millimetres in diameter and it has been manufactured to obtain in turning too, machining of shafts with error of concentricity max 0.020.

CARATTERISTICHE:

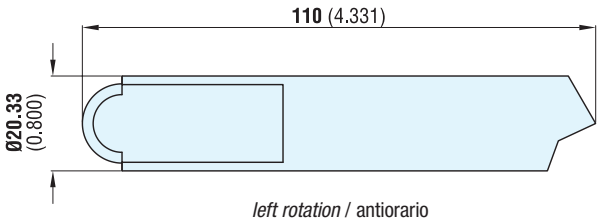
Questo trascinatore con punta fissa intercambiabile ad azionamento idraulico è adatto per lavorare alberi aventi il diametro di tornitura compreso tra 180 e 300 mm, ed è stato realizzato per ottenere, anche in tornitura, lavorazioni di alberi con errore di concentricità max 0.020.



Code right rotation Codice orario	*Code left rotation* Codice antiorario
070760051	070760050

SPARE PARTS

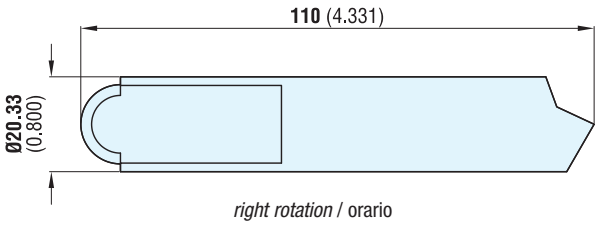
Driving pins for 180/300



left rotation / antiorario

RICAMBI

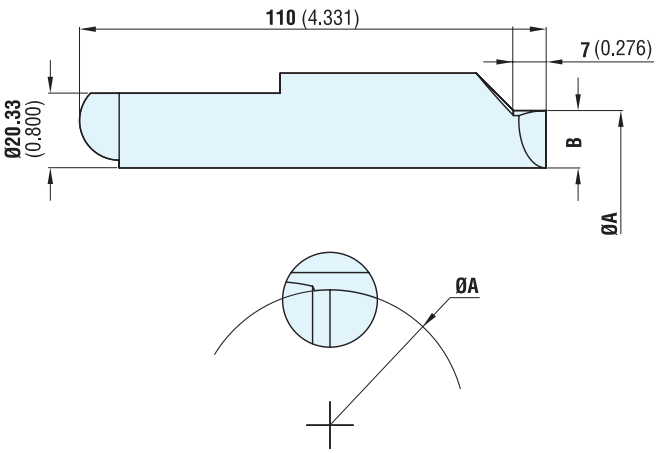
Artigli di trascinamento per 180/300



right rotation / orario

Code left rotation Codice antiorario	*Code right rotation* Codice orario
080810212	080810213

Lowered driving pins for 180/300

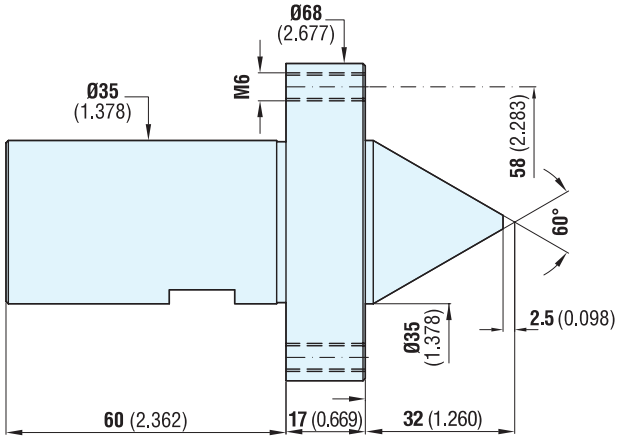


Artigli di trascinamento ribassati per 180/300

Code left rotation Codice antiorario	*Ø A*	*B*
090900084	124 (4.882)	6.2 (0.244)
090900089	129 (5.079)	8.7 (0.343)
090900094	134 (5.276)	11.2 (0.441)
090900099	139 (5.472)	13.7 (0.539)

Code right rotation Codice orario	*Ø A*	*B*
090901084	124 (4.882)	6.2 (0.244)
090901089	129 (5.079)	8.7 (0.343)
090901094	134 (5.276)	11.2 (0.441)
090901099	139 (5.472)	13.7 (0.539)

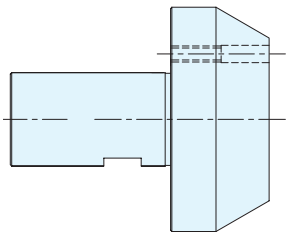
Fixed center point for 180/300



Punta fissa centrale per 180/300

Code Codice
072102763

Available on request / Disponibili su richiesta



Fixed center point with slots for 180/300

(for large centers or holes)

Punta fissa centrale a capruggine per 180/300

(per centri grandi o fori)

FACE DRIVERS STANDARD FOR GEAR CUTTING MACHINES WITH FIXED DRIVING TEETH, FOR GEAR CUTTING OF SHAFTS AND PIPES

TRASCINATORI FRONTALI STANDARD PER DENTATRICE A DENTI DI TRASCINAMENTO FISSI, PER DENTATURA DI ALBERI E TUBI

TECHNICAL FEATURES:

The face drivers for gear cutting machines with fixed driving teeth and indipendent and retractable center point, are especially suitable for gear cutting of shafts and they can be used to machine every kind of centered gears.

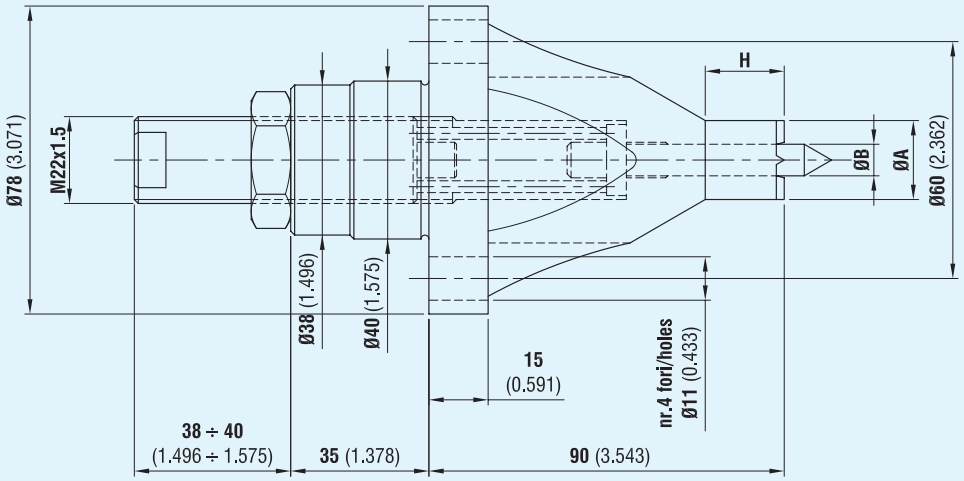
The main body is made of steel (X 210 Cr 13 KU) and has high toughness, waterproof and hardness degree.

The teeth have been machined on the integral body and are always regrindable. The center point is hardened.

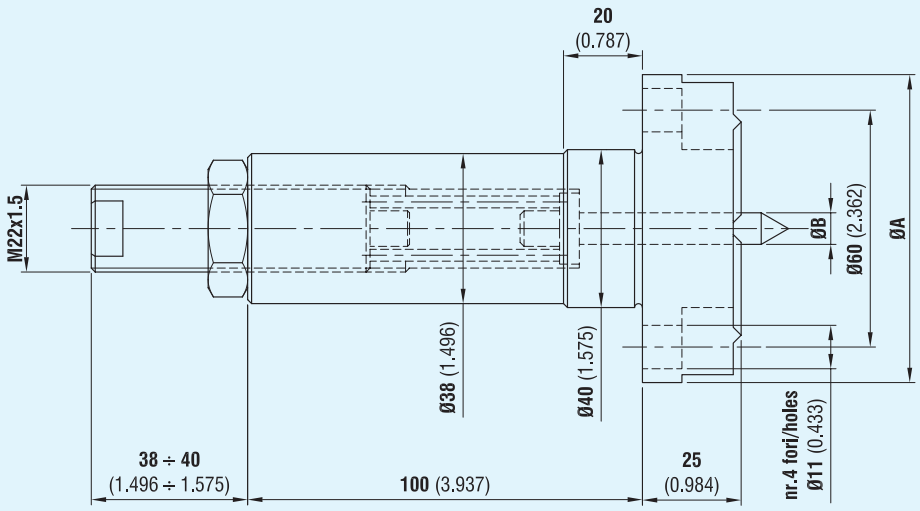
CARATTERISTICHE TECNICHE:

I trascinatori frontali per dentatrici a denti fissi con punta centrale indipendente e rientrante, sono particolarmente indicati per la dentatura di alberi ed è possibile impiegarli per tutti i tipi di ingranaggi centrati.

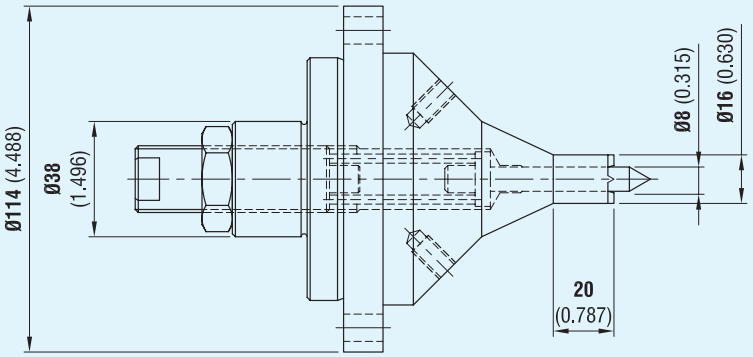
Il corpo principale è costruito in acciaio speciale (X 210 Cr 13 KU) che ha elevata tenacità, resistenza all'usura, grado di durezza. I denti sono ricavati sul corpo integrale, quindi sempre riaffilabili. La punta centrale è temprata.

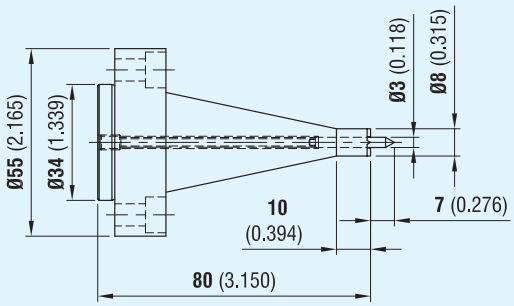


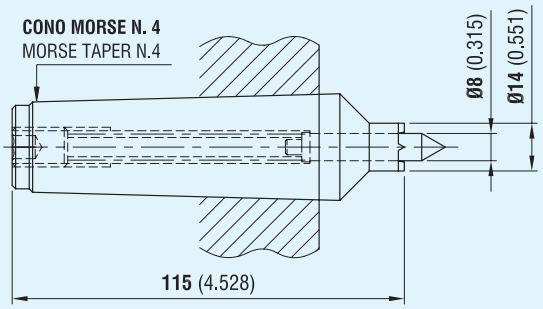
Code Codice	*Ø A*		*Ø B*		*H*	
060600451	13	(0.512)	6	(0.236)	15	(0.591)
060600452	20	(0.787)	8	(0.315)	20	(0.787)
060600456	30	(1.181)	14	(0.551)	20	(0.787)
060600453	40	(1.575)	18	(0.709)	20	(0.787)

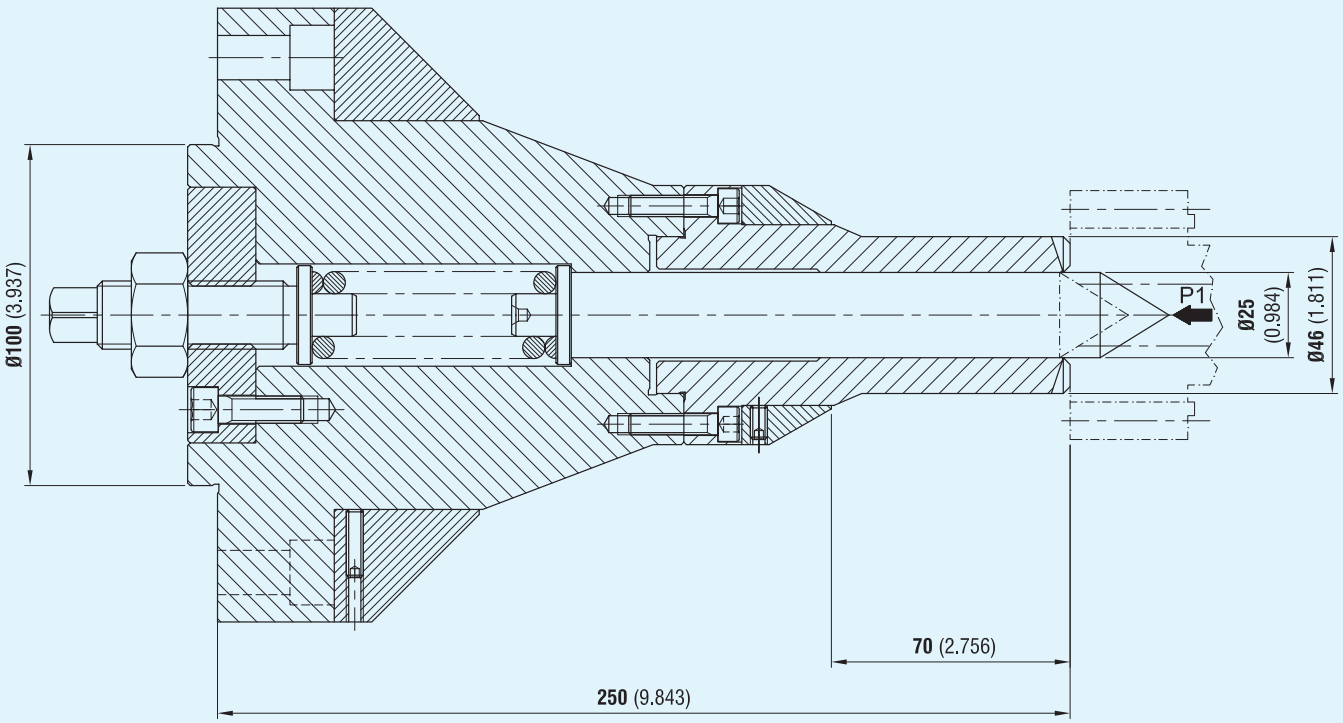


Code Codice	*Ø A*		*Ø B*	
060600454	78	(3.071)	8	(0.315)
060600455	78	(3.071)	18	(0.709)


Ø114 (4.488)
Ø38 (1.496)
Ø8 (0.315)
Ø16 (0.630)
20 (0.787)


Ø55 (2.165)
Ø34 (1.339)
Ø3 (0.118)
Ø8 (0.315)
10 (0.394)
7 (0.276)
80 (3.150)


CONO MORSE N. 4
MORSE TAPER N.4
Ø8 (0.315)
Ø14 (0.551)
115 (4.528)


Ø100 (3.937)
P1
Ø25 (0.984)
Ø46 (1.811)
70 (2.756)
250 (9.843)

FACE DRIVER 15/55 WITH FLANGE ATTACHMENT AND SELF ADJUSTABLE INTERCHANGEABLE DRIVING PINS

TRASCINATORE FRONTALE 15/55 CON ATTACCO A FLANGIA E DENTI BASCULANTI

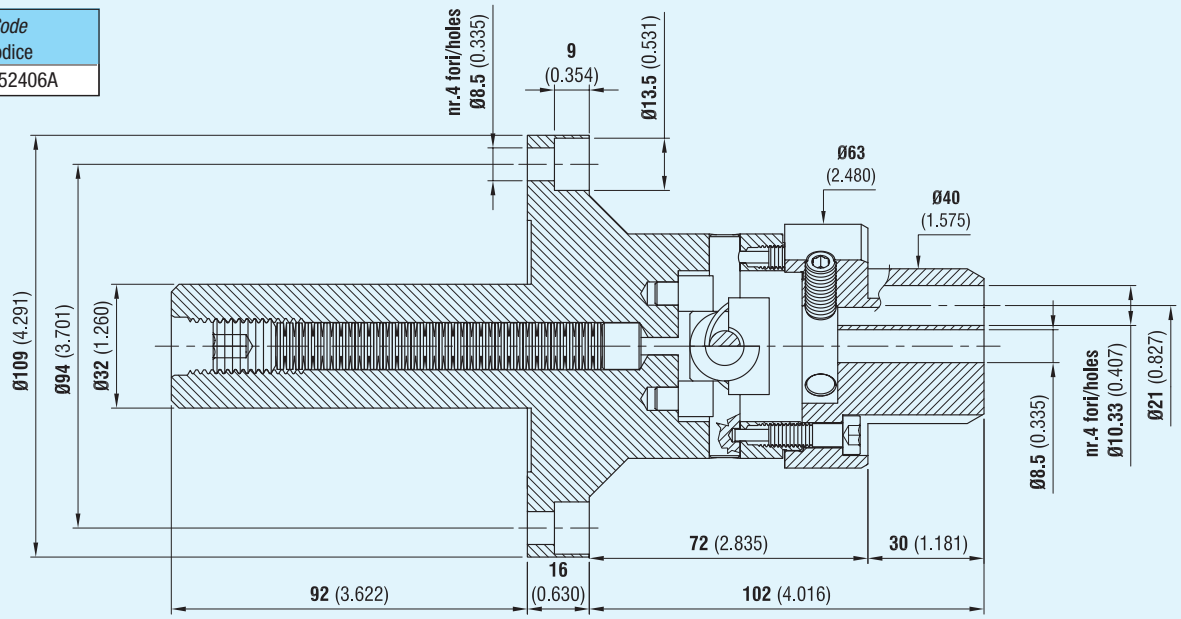
TECHNICAL FEATURES:

This face driver is suitable for machining parts from Ø15 (inch. 0.591) to Ø70 mm (inch. 2.756). For parts from Ø15 (inch. 0.591) to Ø31 (inch. 1.220) mm gear cutting is possible on live center side only; for parts from Ø31 (inch. 1.220) to Ø70 (inch. 2.756) mm gear cutting is possible also on face driver side.

CARATTERISTICHE TECNICHE:

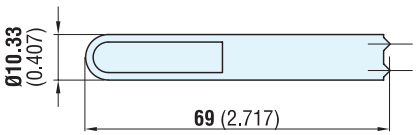
Questo trascinatore ha un campo di lavoro da Ø15 a Ø70 mm. Per particolari da Ø15 a Ø31 mm la dentatura è possibile solo dal lato contropunta (ingombro artigli Ø31), mentre per particolari da Ø31 a Ø70 mm è possibile eseguire la dentatura anche dal lato trascinatore.

Code Codice
070752406A



SPARE PARTS

Driving pins with double blades for 15/55

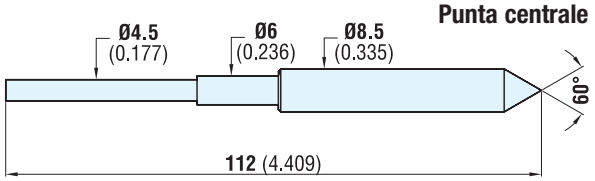


RICAMBI

Artigli di trascinamento bitaglienti per 15/55

Code Codice
080809006

Center point for 15/55

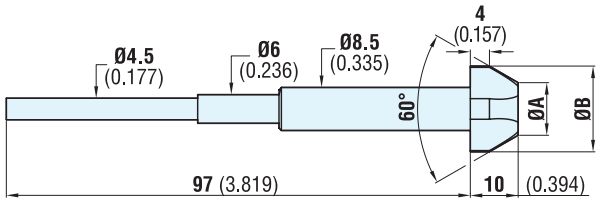


Punta centrale per 15/55

Code Codice
072102766

Center points with slots for 15/55

(for large centers or holes)



Punte centrali a capruggine per 15/55

(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171711015	5 (0.197)	12 (0.472)	7.5 (0.295)	10.5 (0.413)
171711016	8 (0.315)	15 (0.591)	10.5 (0.413)	13.5 (0.531)
171711017	11 (0.433)	18 (0.709)	13.5 (0.531)	16.5 (0.650)
171711019	14 (0.551)	21 (0.827)	16.5 (0.650)	19.5 (0.768)
171711020	17 (0.669)	24 (0.945)	19.5 (0.768)	22.5 (0.886)
171711022	20 (0.787)	27 (1.063)	22.5 (0.886)	25.5 (1.004)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

FACE DRIVER 20/70 WITH FLANGE ATTACHMENT AND SELF ADJUSTABLE INTERCHANGEABLE DRIVING PINS

TRASCINATORE FRONTALE 20/70 CON ATTACCO A FLANGIA E DENTI BASCULANTI

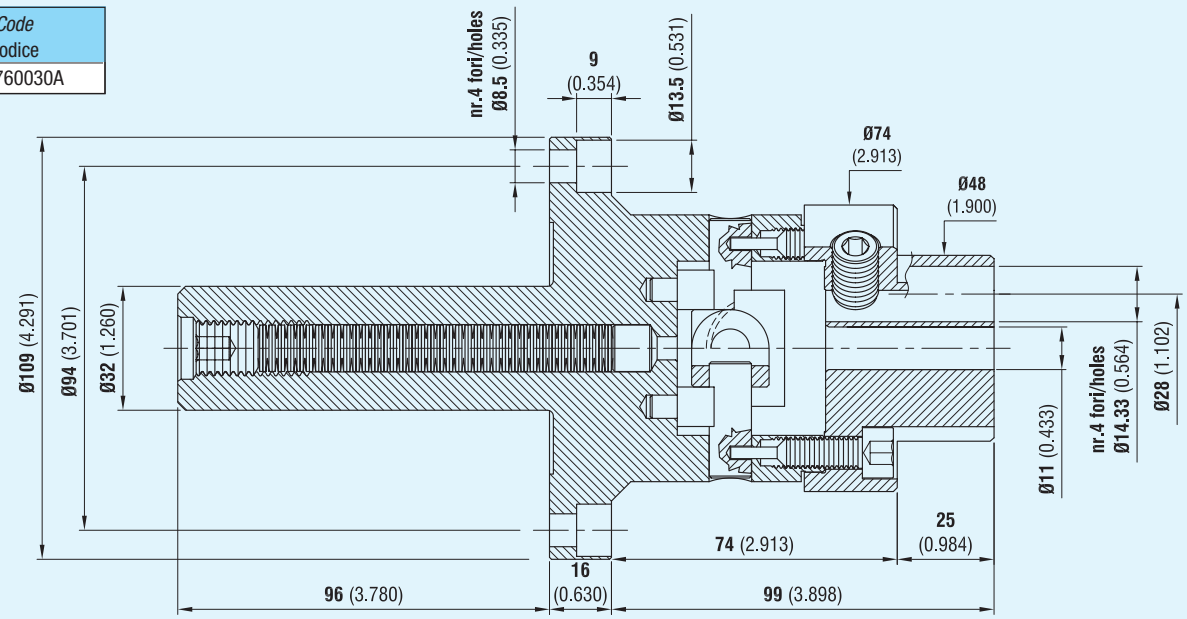
TECHNICAL FEATURES:

This face driver is suitable for machining parts from Ø20 (inch. 0.787) to Ø100 mm (inch. 3.937). For parts from Ø20 (inch. 0.787) to Ø42 (inch.1.654) mm gear cutting is possible on live center side only; for parts from Ø42 (inch.1.654) to Ø100 (inch. 3.937) mm gear cutting is possible also on face driver side.

CARATTERISTICHE TECNICHE:

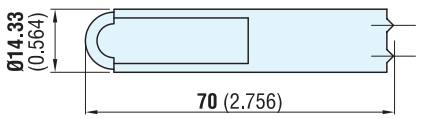
Questo trascinatore ha un campo di lavoro da Ø20 a Ø100 mm. Per particolari da Ø20 a Ø42 mm la dentatura è possibile solo dal lato contropunta (ingombro artigli Ø42), mentre per particolari da Ø42 a Ø100 mm è possibile eseguire la dentatura anche dal lato trascinatore.

Code Codice
070760030A



SPARE PARTS

Driving pins with double blades for 20/70

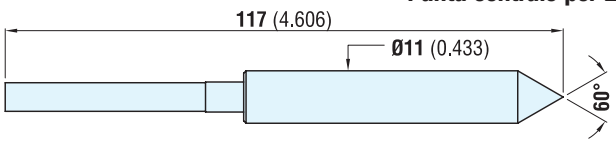


RICAMBI

Artigli di trascinamento bitaglienti per 20/70

Code Codice
080809007

Center point for 20/70

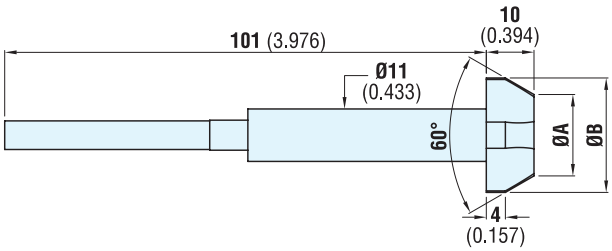


Punta centrale per 20/70

Code Codice
072102756

Center points with slots for 20/70

(for large centers or holes)



Punte centrali a capruggine per 20/70

(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	Dimensions points with slots Dimensioni punte a capruggine		For centers or "F" holes Per centri o fori "F"	
	Ø A	Ø B	from / dal Ø	to / al Ø
171712010	8 (0.315)	15 (0.591)	10.5 (0.413)	13.5 (0.531)
171712011	11 (0.433)	18 (0.709)	13.5 (0.531)	16.5 (0.650)
171712012	14 (0.551)	21 (0.827)	16.5 (0.650)	19.5 (0.768)
171712013	17 (0.669)	24 (0.945)	19.5 (0.768)	22.5 (0.886)
171712014	20 (0.787)	27 (1.063)	22.5 (0.886)	25.5 (1.004)
171712015	23 (0.906)	30 (1.181)	25.5 (1.004)	28.5 (1.122)
171712016	26 (1.024)	33 (1.299)	28.5 (1.122)	31.5 (1.240)
171712017	29 (1.142)	36 (1.417)	31.5 (1.240)	34.5 (1.358)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

FACE DRIVER 45/150 WITH FLANGE ATTACHMENT AND SELF ADJUSTABLE INTERCHANGEABLE DRIVING PINS

TRASCINATORE FRONTALE 45/150 CON ATTACCO A FLANGIA E DENTI BASCULANTI

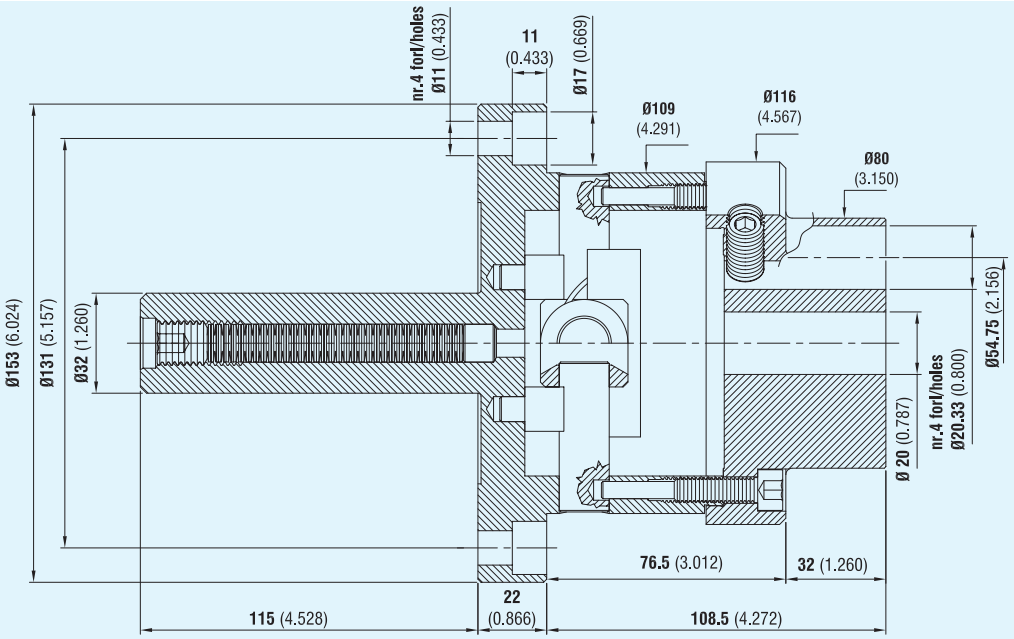
TECHNICAL FEATURES:

This face driver is suitable for machining parts from Ø45 (inch. 1.772) to Ø150 mm (inch. 5.906). For parts from Ø45 (inch. 1.772) to Ø75 mm (inch. 2.953) gear cutting is possible on live center side only; for parts from Ø75 (inch. 2.953) to Ø150 mm (inch. 5.906) gear cutting is possible also on face driver side.

CARATTERISTICHE TECNICHE:

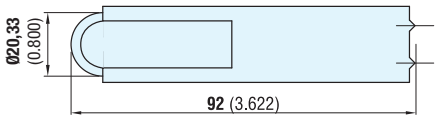
Questo trascinatore ha un campo di lavoro da Ø45 a Ø150 mm. Per particolari da Ø45 a Ø75 mm la dentatura è possibile solo dal lato contropunta (ingombro artigli Ø75), mentre per particolari da Ø75 a Ø150 mm è possibile eseguire la dentatura anche dal lato trascinatore.

Code Codice
070760034A



SPARE PARTS

Driving pins with double blades for 45/150

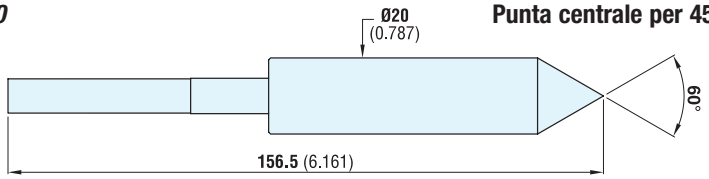


RICAMBI

Artigli di trascinamento bitaglienti per 45/150

Code Codice
080809008

Center point for 45/150

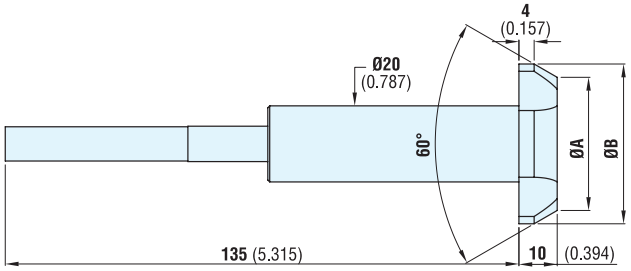


Punta centrale per 45/150

Code Codice
072102758

Center points with slots for 45/150

(for large centers or holes)



Punte centrali a capruggine per 45/150

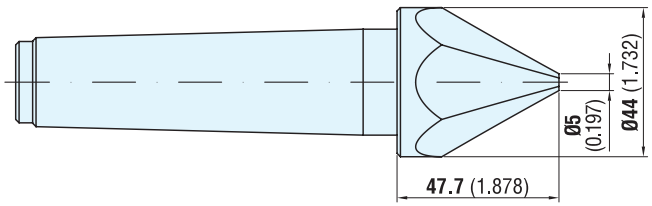
(per centri grandi o fori)

Code center points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171713020	14 (0.551)	21 (0.827)	16.5 (0.650)	19.5 (0.768)
171713021	17 (0.669)	24 (0.945)	19.5 (0.768)	22.5 (0.886)
171713022	20 (0.787)	27 (1.063)	22.5 (0.886)	25.5 (1.004)
171713023	23 (0.906)	30 (1.181)	25.5 (1.004)	28.5 (1.122)
171713024	26 (1.024)	33 (1.299)	28.5 (1.122)	31.5 (1.240)
171713025	29 (1.142)	36 (1.417)	31.5 (1.240)	34.5 (1.358)
171713026	32 (1.260)	39 (1.535)	34.5 (1.358)	37.5 (1.476)
171713027	35 (1.378)	42 (1.654)	37.5 (1.476)	40.5 (1.594)
171713028	38 (1.496)	45 (1.772)	40.5 (1.594)	43.5 (1.713)
171713029	41 (1.614)	48 (1.890)	43.5 (1.713)	46.5 (1.831)
171713030	44 (1.732)	51 (2.008)	46.5 (1.831)	49.5 (1.949)

For operating instructions, see page. 41

Per le modalità d'impiego dei trascinatori con punta a capruggine vedere pag. 41

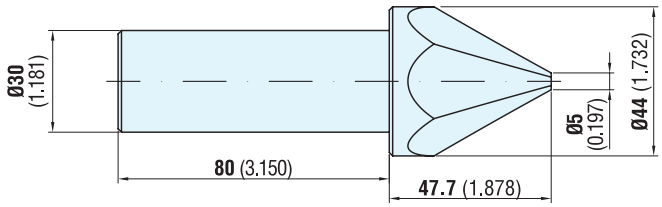
Driver for pipes with 7 (inch. 0.276) to 40 (inch. 1.575) diameter holes with morse taper fitting



Trascinatore per tubi per fori da Ø 7 a Ø 40 mm con attacco cono morse

Code Codice	*Taper* Cono	*Nr. Faces* N. Facce
050528002	CM2	6
050528103	CM3	6
050528204	CM4	6
050528305	CM5	6

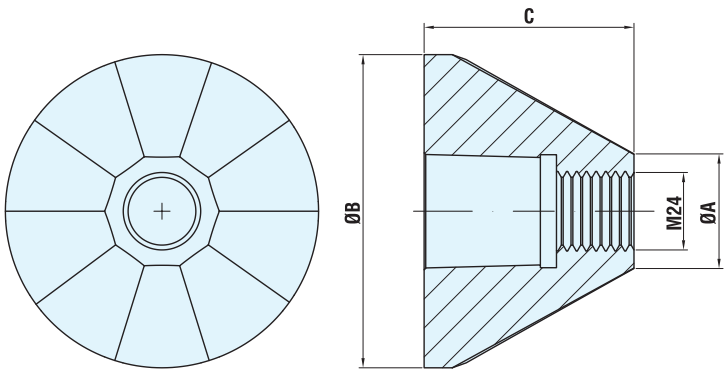
Driver for pipes with 7 (inch. 0.276) to 40 (inch. 1.575) diameter holes with cylindrical shank



Trascinatore per tubi per fori da Ø 7 A Ø 40 mm con gambo cilindrico

Code Codice	*Nr. Faces* N. Facce
050528000	6

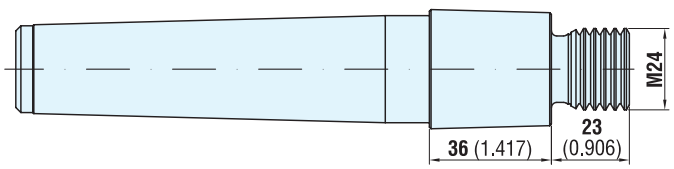
Driver for pipes with 40 (inch. 1.575) to 245 (inch. 9.646) diameter holes



Trascinatore per tubi per fori da Ø 40 A Ø 245 mm

Code Codice	*Ø A*	*Ø B*	*C*	*Nr. Faces* N. Facce
050500284	37 (1.457)	97 (3.819)	65 (2.559)	10
050500285	95 (3.740)	147 (5.787)	60 (2.362)	15
050500286	145 (5.709)	197 (7.756)	60 (2.362)	15
050500287	195 (7.677)	247 (9.724)	67 (2.638)	15

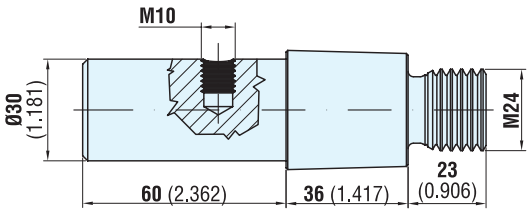
Support shank with morse taper fitting for pipe drivers



Gambo con attacco cono morse porta trascinatore per tubi

Code Codice	*Taper* Cono
050500702	CM2
050500703	CM3
050500704	CM4
050500705	CM5

Cylindrical support shank for pipe drivers



Gambo cilindrico porta trascinatore per tubi

Code Codice
050500700

WITH ROUNDNESS TOLERANCE = 0÷0.0015
AND ECCENTRICITY TOLERANCE = 0÷0.0025

We are sure of meeting any technical suggestions that may come up with our range of face drivers, for driving hardened shafts of up to HRC 63 and non-hardened shafts too. A 90 Kg axial thrust from the live center side is sufficient to drive the shaft (we supply also the live center to obtain shaft roundness within one thousandths and a half).

Example: for shafts in the diameter range from 5 mm to 7 mm, a 90 Kg axial thrust from live centre's side is sufficient. The face driver has an integrated balance-type self-compensating system (this is our patented system, which we also use on our face drives for shaft turning).

This system enables highly sensitive self-compensation of the driving pins. As a result the face driver has considerable drive and concentricity capability on the shaft.

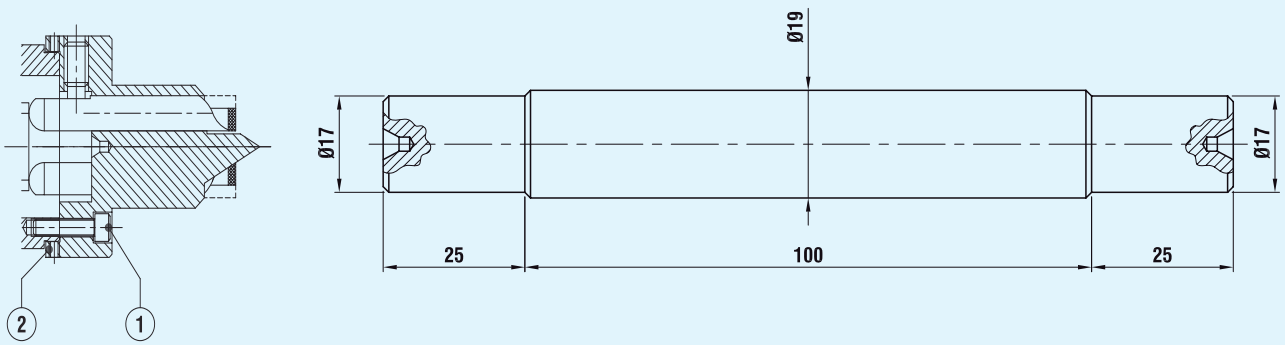
CON TOLLERANZA ROTONDITÀ = 0÷0,0015
E TOLLERANZA ECCENTRICITÀ = 0÷0,0025

Con questa gamma di trascinatori, per trainare alberi temprati fino a HRC 63 e alberi non temprati, siamo convinti di soddisfare qualsiasi esigenza tecnica proposta.
Per trainare l'albero sono sufficienti 90 Kg. di spinta assiale dal lato della contropunta rotante (anche questa da noi fornita per potere ottenere una rotondità dell'albero entro un millesimo e mezzo). Esempio: per alberi da diametro 5 mm. a diametro 7 mm. sono sufficienti 90 Kg. di spinta assiale dal lato della contropunta rotante. Il trascinatore ha all'interno il sistema autocompensante a bilancia (nostro sistema, brevettato, usato anche sui nostri trascinatori per tornire alberi).

Detto sistema consente un'autocompensazione degli artigli molto sensibile, permettendo al trascinatore di avere un'alta capacità di traino e concentricità sull'albero.

DRIVING PIN WASHER CENTERING SHAFT
ALBERO DI CENTRAGGIO TESTINA PORTA ARTIGLI

Code
Codice
012920001



INSTRUCTIONS FOR CENTERING THE DRIVING PIN WASHER
The centering shaft is used to center the face driver's centre point within 2 thousandths, putting the centering shaft between face driver and live centre in the same axial load conditions as those of the piece to be machined.
Then use an Allen wrench to slightly unloose the screws pos. 1 (see picture) and position the micrometer-comparator on the face driver side of the centering shaft and center the shaft by means of the dowels pos. 2. Once obtained centering required, tighten the screws (pos.1).

ISTRUZIONI PER IL CENTRAGGIO DELLA TESTINA PORTA ARTIGLI
L'albero di centraggio serve per centrare la punta centrale del trascinatore entro i 2 millesimi. Inserire l'albero di centraggio fra trascinatore e contropunta nelle stesse identiche condizioni di carico assiale del pezzo da lavorare.
Allentare quindi leggermente con una chiave a brugola le viti pos.1 (vedi figura).
Posizionare il comparatore millesimale sull'albero dal lato trascinatore e utilizzando i grani pos. 2, centrare l'albero. Ottenuta la centratura desiderata lasciando in appoggio i grani, riserrare le viti pos. 1.

INSTRUCTIONS FOR SELECTING AXIAL LOAD PARAMETERS ON LIVE CENTERS AND FACE DRIVERS

ISTRUZIONI PER LA SCELTA DEI PARAMETRI DI CARICO ASSIALE SU CONTROPUNTE E TRASCINATORI

FOR SHAFTS **PER ALBERI**		**MINIMUM AXIAL THRUST** ***SPINTA ASSIALE MINIMA***		**MAXIMUM AXIAL THRUST** ***SPINTA ASSIALE MASSIMA***	
		On driving pins **Sugli artigli**	***On live center*** **Sulla contropunta**	***On driving pins*** **Sugli artigli**	***On live center*** **Sulla contropunta**
From Ø *da Ø*	to Ø *a Ø*	kg.	kg.	kg.	kg.
5	9	50	70	80	110
10	15	60	90	100	150
16	30	70	100	150	220
31	50	100	150	200	300
51	100	150	220	250	370
101	200	200	300	350	800

N.B. *The above values are purely a guide-line and may vary according to grinding wheel contact area and type of material being machined.*

THRUST CHECK:

After you have locked the workpiece between live center and face driver, do not, on any account, check driving capability by rotating the piece with your hand: this is certain to blunt the cutting edge in hardened metal of the driving pin. If you do not have a load cell (see page 90) or a dynamometer for these checks, you can obtain thrust values in kg by multiplying the area of the pneumatic or hydraulic cylinder (obtained by multiplying radius in cm x radius x 3.14) by the pressure of the cylinder in bar or atmospheres.

FORMULA:

Radius^2 (in cm) xπx Pressure (in BAR or ATM) = Thrust in Kg.

NOTES ON SCHEDULED MAINTENANCE

- *Every 1000 working hours, remove driving pins and centre point, clean them carefully, and then grease them with "MOLYKOTE" grease or conformable grease.*

  Re -install the driving pins and finally fit the centre point.

  It is also possible to return the face drive to Tecnologie FRB for maintenance and cleaning.

N.B. I suddetti valori sono comunque indicativi e variabili in considerazione della fascia di contatto mola e del tipo di materiale da lavorare

VERIFICA SPINTE:

Evitare assolutamente, dopo aver bloccato il pezzo tra contropunta e trascinatore, di verificare la tenuta del traino tentando di ruotare il pezzo con la mano; questa operazione infatti causa una sicura perdita del tagliente nell'artiglio in metallo duro. Se non possedete una cella di carico (vedi pag. 90) o un dinamometro per queste verifiche, potrete ottenere i valori di spinta in Kg., moltiplicando l'area del cilindro pneumatico od idraulico, (ottenuta moltiplicando il raggio in cm. x raggio x 3,14) per la pressione del cilindro in bar o atmosfere.

FORMULA:

R^2 (in cm) xπx P (in BAR o ATM) = Spinta in kg. Forza

NOTE DI MANUTENZIONE PERIODICA

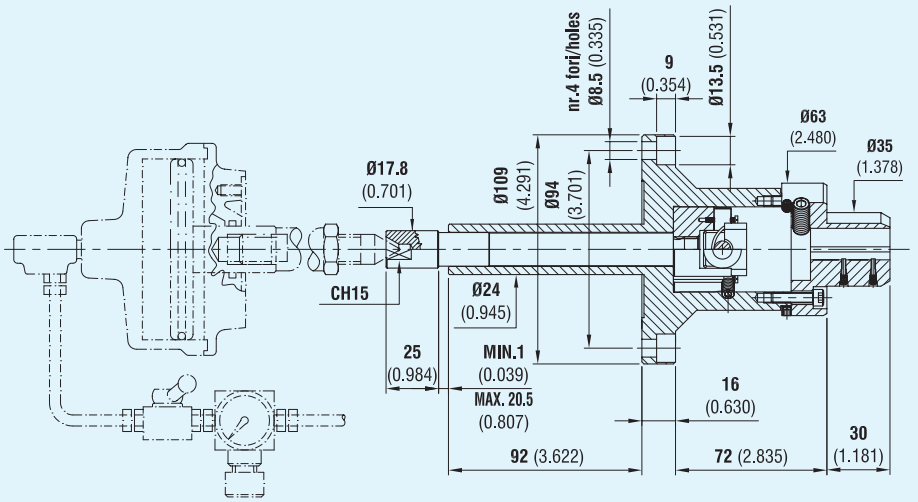
- Ogni 1000 ore di lavoro, togliere artigli e punta centrale, pulirli accuratamente, poi ingrassarli con grasso "MOLYKOTE" o simile.
  Rimettere gli artigli e in seguito la punta centrale.
  In alternativa è possibile spedire il trascinatore alla casa madre per manutenzione e pulizia interna.

FACE DRIVERS Ø 12/70 FOR GRINDING MACHINES WITH ROTATING HEAD SPINDLE, OPERATED BY HYDRAULIC OR PNEUMATIC CYLINDER

TRASCINATORI FRONTALI Ø 12/70 PER RETTIFICATRICI AVENTI ALBERO TESTA ROTANTE, AZIONATI DA CILINDRO PNEUMATICO O IDRAULICO

Version without driving pins and center point

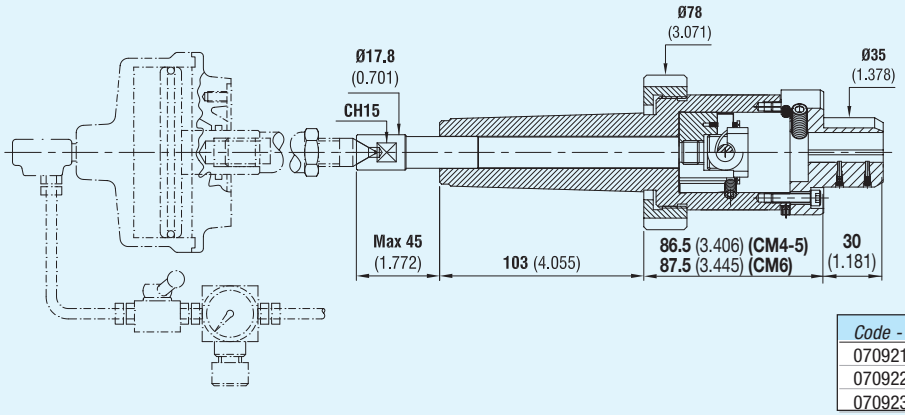
Versione senza artigli e senza punta centrale



Code - Codice
070921060 A

Version without driving pins and center point

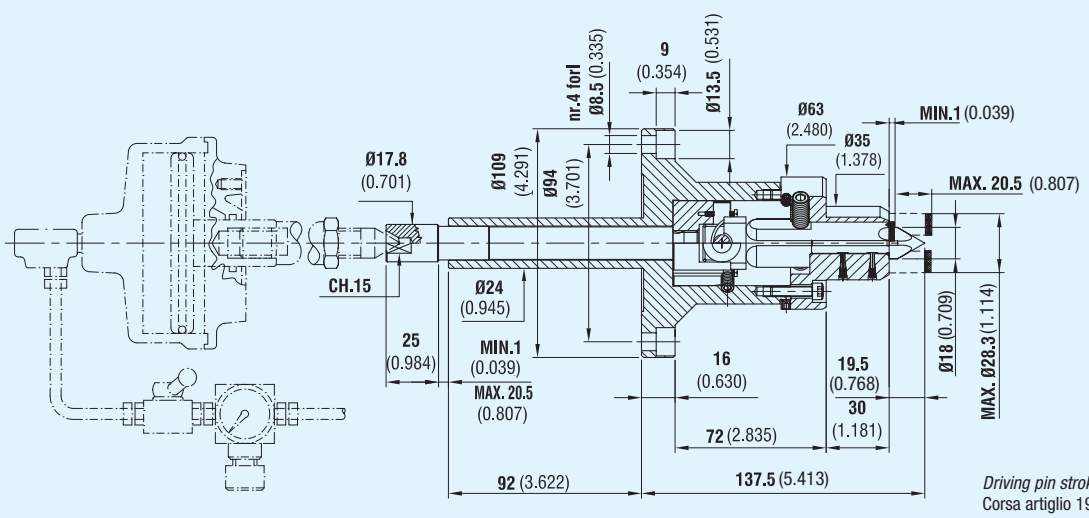
Versione senza artigli e senza punta centrale



Code - Codice	*Cono Morse*	*Morse Taper*
070921036 A	C.M.4	MT4
070922036 A	C.M.5	MT5
070923036 A	C.M.6	MT6

Version with assembled center point and driving pins

Versione con montato punta centrale e artigli

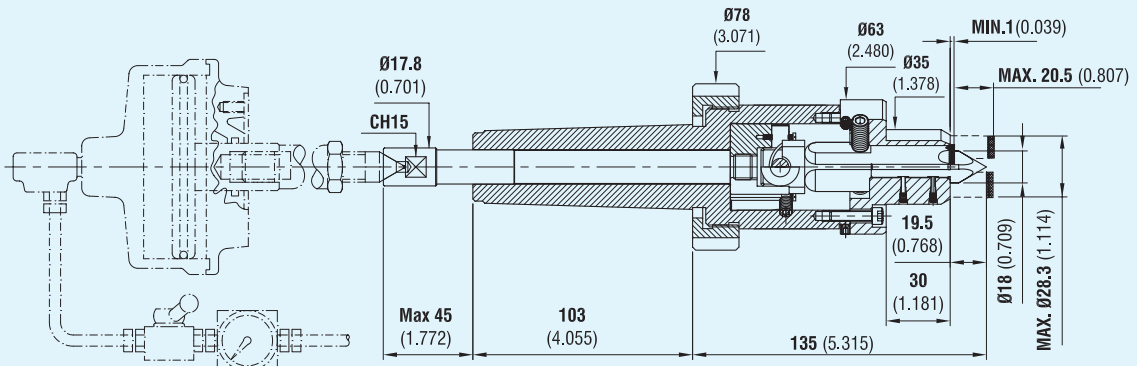


Code - Codice
070921066

Driving pin stroke 19.5 (inch. 0.768)
Corsa artiglio 19.5

Version with assembled center point and driving pins

Versione con montato punta centrale e artigli



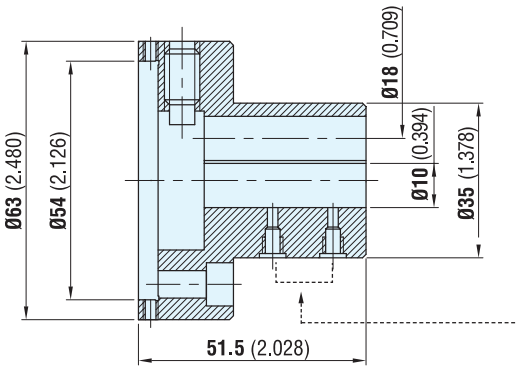
Code - Codice	*Cono Morse*	*Morse Taper*
070921042	C.M.4	MT4
070922042	C.M.5	MT5
070923042	C.M.6	MT6

Driving pin stroke 19.5 (inch. 0.768)
Corsa artiglio 19.5

SPARE PARTS / RICAMBI

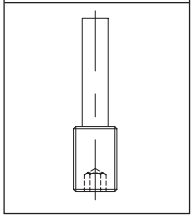
Driving pins and center point face plate for face driver ø 12/70

Testina porta artigli e punta centrale per trascinatore ø 12/70



Code - Codice
072921104

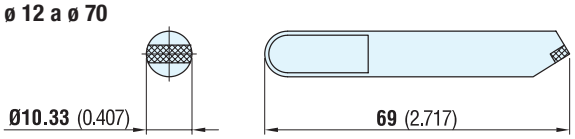
Screw Code Codice vite
072920084



Driving pins with added hard metal for driving shafts from ø 12 to ø 70

Code - Codice
080920003

Artigli in MD riportato per trainare alberi da ø 12 a ø 70



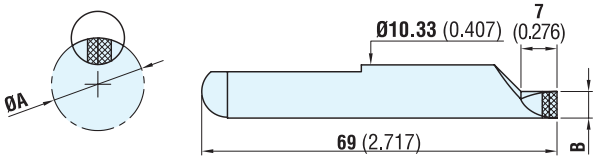
Reduced edge driving pins with added hard metal for driving shafts from ø 12 to ø 70 lowered to permit the wheel to get out on face driver side

Artiglio in MD riportato per trainare alberi da ø 12 a ø 70 ribassato per permettere l'uscita mola da lato trascinatore

Code - Codice	*Ø A*	*B*
091920112	12 (0.472)	2.20 (0.087)
091920114	14 (0.551)	3.20 (0.126)
091920116	16 (0.630)	4.20 (0.165)
091920118	18 (0.709)	5.20 (0.205)
091920120	20 (0.787)	6.20 (0.244)
091920122	22 (0.866)	7.20 (0.283)
091920124	24 (0.945)	8.20 (0.323)
091920126	26 (1.024)	9.20 (0.362)

WARNING: *contact our technical department for these dimensions*

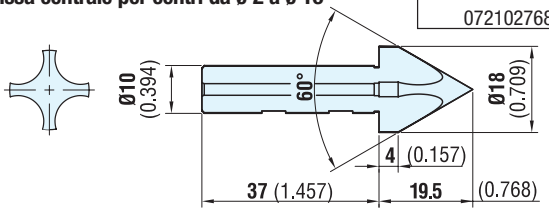
ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico



Fixed center point for centers from ø 2 to ø 16

Punta fissa centrale per centri da ø 2 a ø 16

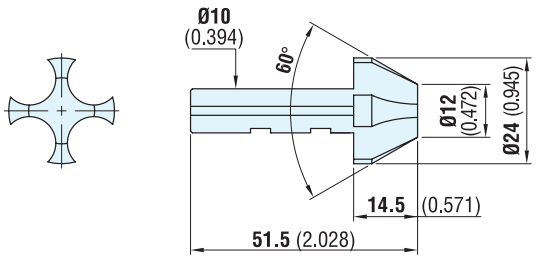
Code - Codice
072102768



Fixed center point with slots for centers
or holes from ø 14 to ø 23

Punta fissa centrale a capruggine per fori o centri da ø 14 a ø 23

Code - Codice
179200101



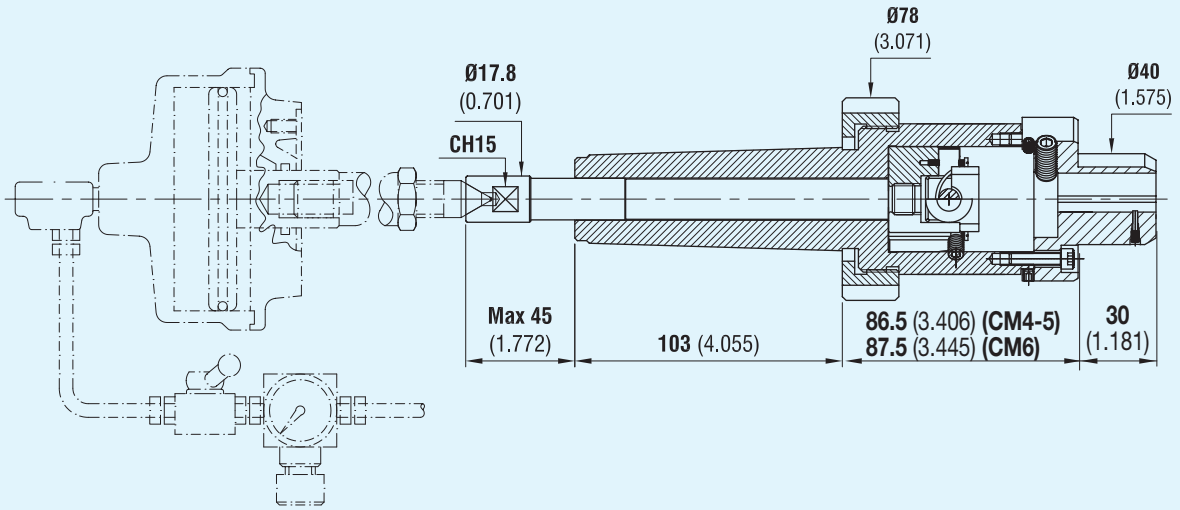
FACE DRIVERS Ø 15/75 FOR GRINDING MACHINES WITH ROTATING HEAD SPINDLE, OPERATED BY HYDRAULIC OR PNEUMATIC CYLINDER

TRASCINATORI FRONTALI Ø 15/75 PER RETTIFICATRICI AVENTI ALBERO TESTA ROTANTE, AZIONATI DA CILINDRO PNEUMATICO O IDRAULICO

Version without driving pins and center point

Versione senza artigli e senza punta centrale

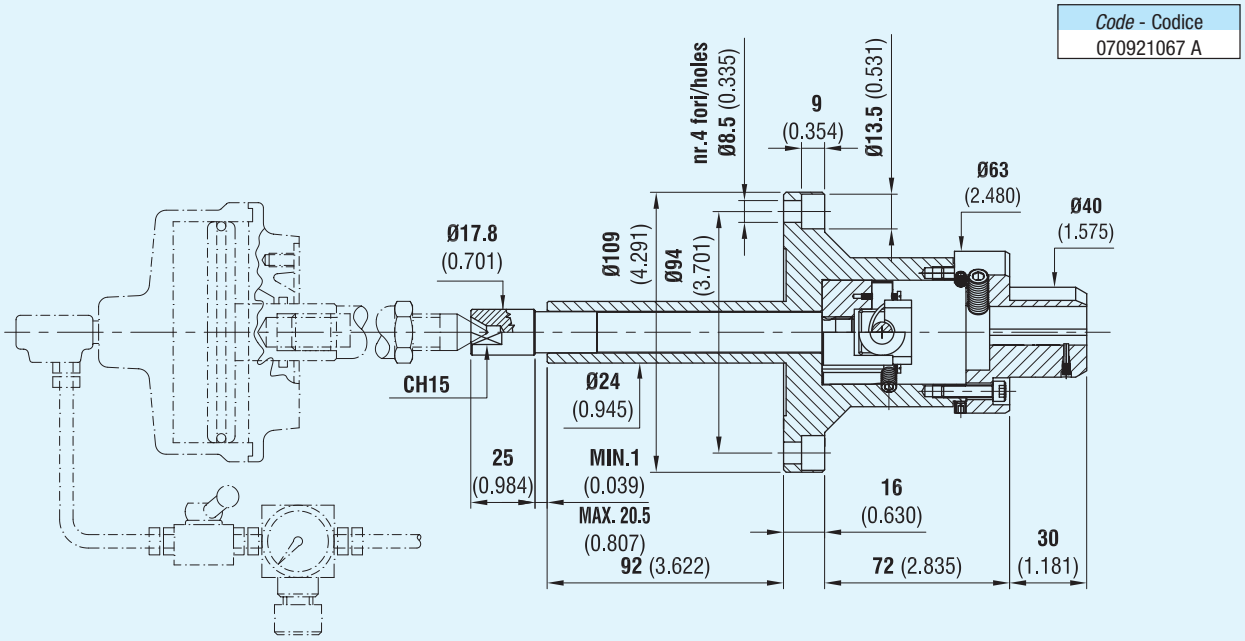
Code - Codice	*Cono Morse*	*Morse Taper*
070921045 A	C.M.4	MT4
070922045 A	C.M.5	MT5
070923045 A	C.M.6	MT6



Version without driving pins and center point

Versione senza artigli e senza punta centrale

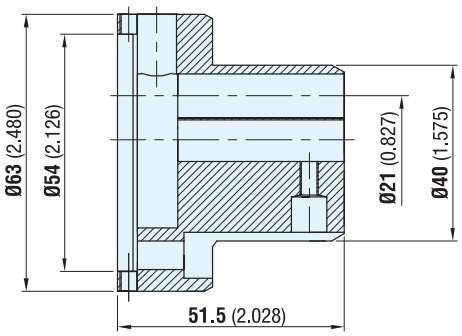
Code - Codice
070921067 A



Driving pins and center point face plate for face driver ø 15/75

Testina porta artigli e punta centrale per trascinatore ø 15/75

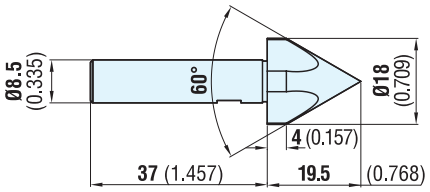
Code - Codice
072921301



Fixed center point for centers from ø 2 to ø 16

Punta fissa centrale per centri da ø 2 a ø 16

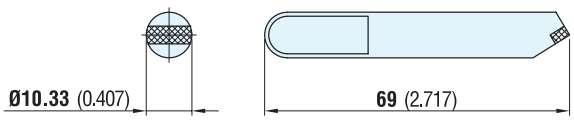
Code - Codice
072102769



Driving pins with added hard metal for driving shafts from ø 15 to ø 75

Artigli in MD riportato per trainare alberi da ø 15 a ø 75

Code - Codice
080920003



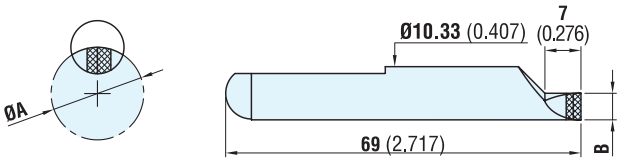
WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

Code - Codice	*Ø A*	*B*
091920112	15 (0.591)	2.20 (0.087)
091920114	17 (0.669)	3.20 (0.126)
091920116	19 (0.748)	4.20 (0.165)
091920118	21 (0.827)	5.20 (0.205)
091920120	23 (0.906)	6.20 (0.244)
091920122	25 (0.984)	7.20 (0.283)
091920124	27 (1.063)	8.20 (0.323)
091920126	29 (1.142)	9.20 (0.362)

Reduced edge driving pins with added hard metal for driving shafts from ø 15 to ø 75 lowered to permit the wheel to get out on face driver side

Artiglio in MD riportato per trainare alberi da ø 15 a ø 75 ribassato per permettere l'uscita mola da lato trascinatore

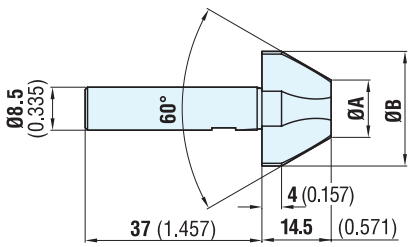


Fixed center point with slots

(for large centers or holes)

Punta fissa centrale a capruggine

(per centri grandi o fori)



Code centre points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	*from* / dal Ø	*to* / al Ø
171711018	12 (0.472)	24 (0.945)	15 (0.591)	23 (0.906)
171711021	18 (0.709)	30 (1.181)	21 (0.827)	26 (1.024)

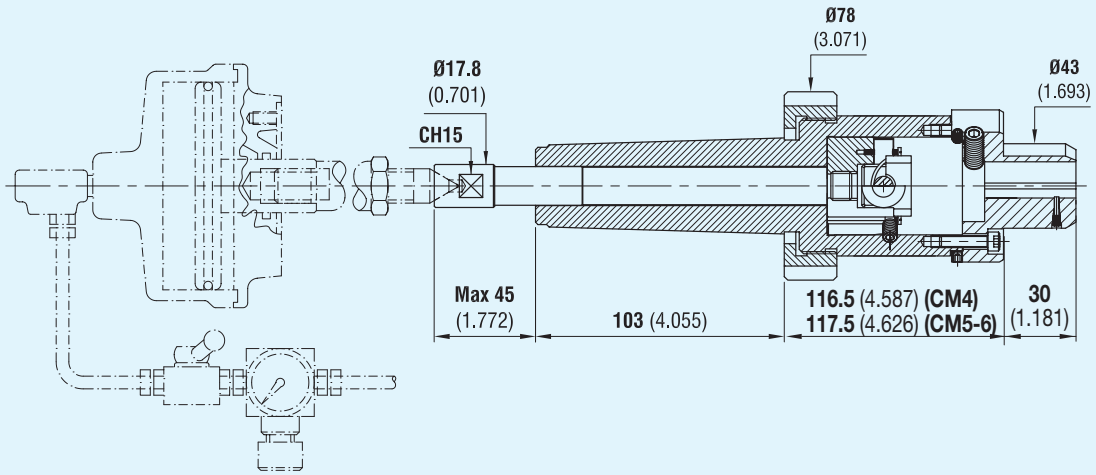
FACE DRIVERS Ø 20/80 FOR GRINDING MACHINES WITH ROTATING HEAD SPINDLE, OPERATED BY HYDRAULIC OR PNEUMATIC CYLINDER

TRASCINATORI FRONTALI Ø 20/80 PER RETTIFICATRICI AVENTI ALBERO TESTA ROTANTE, AZIONATI DA CILINDRO PNEUMATICO O IDRAULICO

Version without driving pins and center point

Versione senza artigli e senza punta centrale

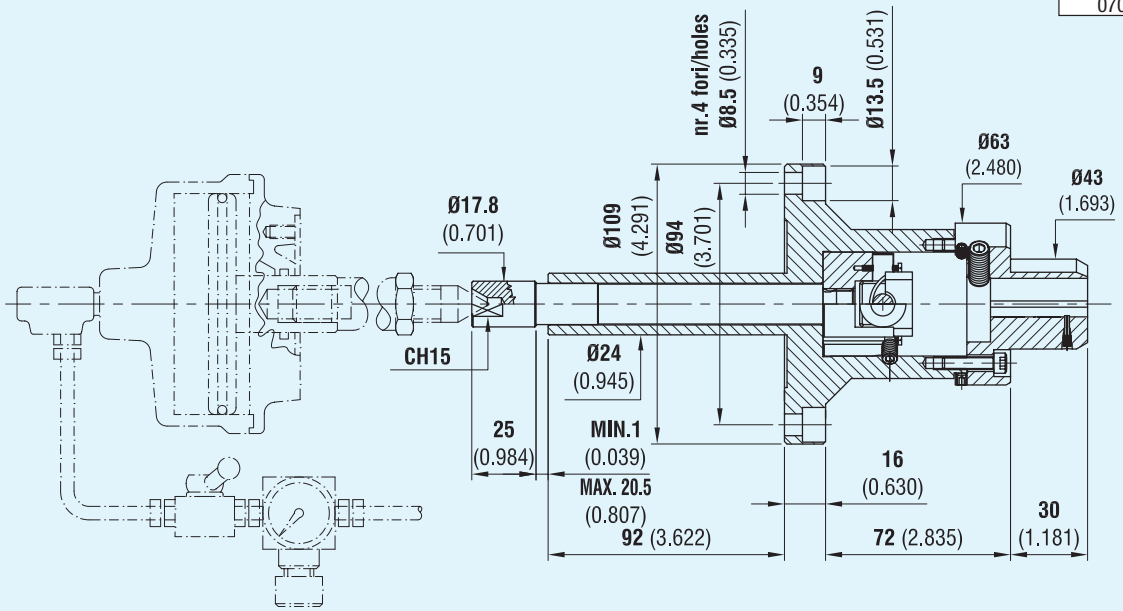
Code - Codice	*Cono Morse*	*Morse Taper*
070921047 A	C.M.4	MT4
070922047 A	C.M.5	MT5
070923047 A	C.M.6	MT6



Version without driving pins and center point

Versione senza artigli e senza punta centrale

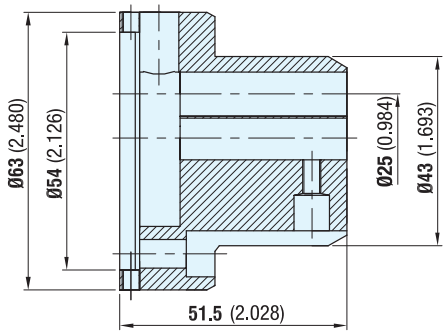
Code - Codice
070921069 A



Driving pins and center point face plate for face driver ø 20/80

Testina porta artigli e punta centrale per trascinatore ø 20/80

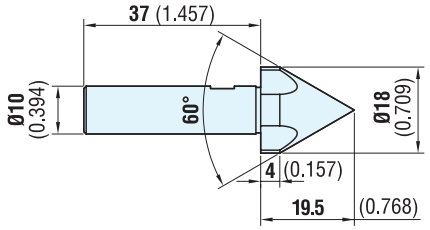
Code - Codice
072921302



Fixed center point for centers from ø 2 to ø 16

Punta fissa centrale per centri da ø 2 a ø 16

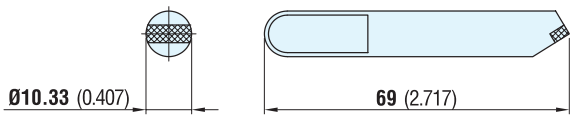
Code - Codice
072102770



Driving pins with added hard metal for driving shafts from ø 20 to ø 80

Artigli in MD riportato per trainare alberi da ø 20 a ø 80

Code - Codice
080920003



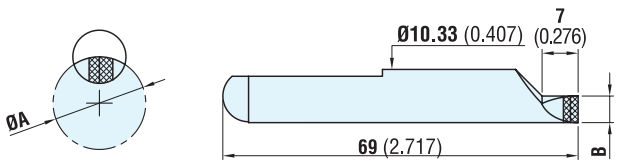
WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

Code - Codice	*Ø A*	*B*
091920112	19 (0.748)	2.20 (0.087)
091920114	21 (0.827)	3.20 (0.126)
091920116	23 (0.906)	4.20 (0.165)
091920118	25 (0.984)	5.20 (0.205)
091920120	27 (1.063)	6.20 (0.244)
091920122	29 (1.142)	7.20 (0.283)
091920124	31 (1.220)	8.20 (0.323)
091920126	33 (1.299)	9.20 (0.362)

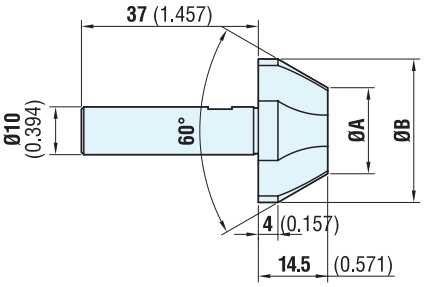
Reduced edge driving pins with added hard metal for driving shafts from ø 20 to ø 80 lowered to permit the wheel to get out on face driver side

Artiglio in MD riportato per trainare alberi da ø 20 a ø 80 ribassato per permettere l'uscita mola da lato trascinatore



Fixed center point with slots
(for large centers or holes)

Punta fissa centrale a capruggine
(per centri grandi o fori)



Code centre points with slots Codice punte a capruggine	*Dimensions points with slots* Dimensioni punte a capruggine		*For centers or "F" holes* Per centri o fori "F"	
	Ø A	*Ø B*	dal / *from Ø*	al / *to Ø*
171712021	12 (0.472)	24 (0.945)	15 (0.591)	23 (0.906)
171712023	15 (0.591)	27 (1.063)	18 (0.709)	26 (1.024)
171712025	18 (0.709)	30 (1.181)	21 (0.827)	29 (1.142)
171712028	24 (0.945)	36 (1.417)	26 (1.024)	31 (1.220)

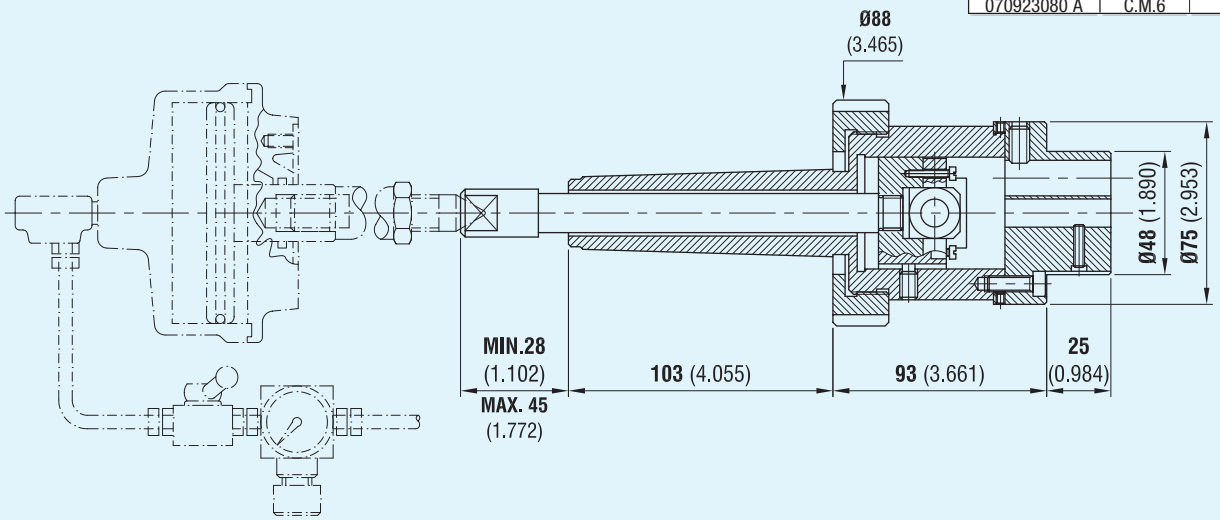
FACE DRIVERS Ø 20/100 FOR GRINDING MACHINES WITH ROTATING HEAD SPINDLE, OPERATED BY HYDRAULIC OR PNEUMATIC CYLINDER

TRASCINATORI FRONTALI Ø 20/100 PER RETTIFICATRICI AVENTI ALBERO TESTA ROTANTE, AZIONATI DA CILINDRO PNEUMATICO O IDRAULICO

Version without driving pins and center point

Versione senza artigli e senza punta centrale

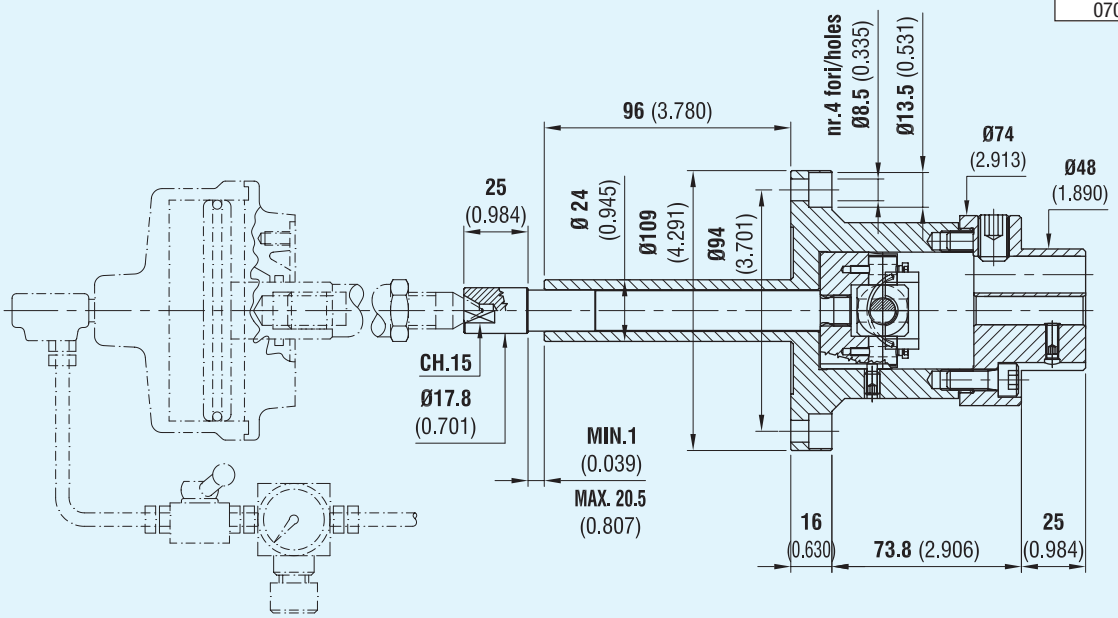
Code - Codice	*Cono Morse*	*Morse Taper*
070921080 A	C.M.4	MT4
070922080 A	C.M.5	MT5
070923080 A	C.M.6	MT6



Version without driving pins and center point

Versione senza artigli e senza punta centrale

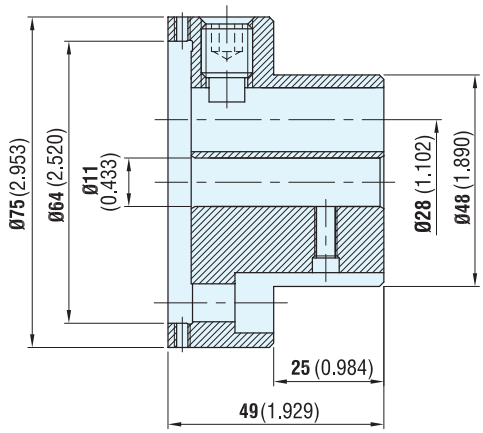
Code - Codice
070921088 A



Driving pins and center point face plate for face driver ø 20/100

Code - Codice
072921203

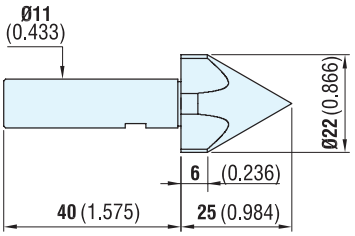
Testina porta artigli e punta centrale per trascinatore ø 20/100



Fixed center point for centers from ø 2 to ø 20

Code - Codice
072102771

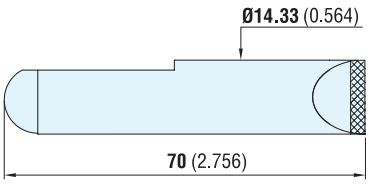
Punta fissa centrale per centri da ø 2 a ø 20



Driving pins with added hard metal for driving shafts from ø 20 to ø 100

Artigli in MD riportato per trainare alberi da ø 20 a ø 100

Code - Codice
080920004



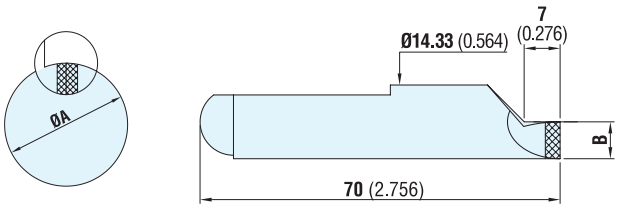
WARNING: *contact our technical department for these dimensions*

ATTENZIONE: per queste misure interpellare il ns. ufficio tecnico

Code - Codice	*Ø A*	*B*
091920219	19 (0.748)	2.70 (0.106)
091920222	22 (0.866)	4.20 (0.165)
091920224	24 (0.945)	5.20 (0.205)
091920226	26 (1.024)	6.20 (0.244)
091920228	28 (1.102)	7.20 (0.283)
091920232	32 (1.260)	9.20 (0.362)
091920236	36 (1.417)	11.20 (0.441)

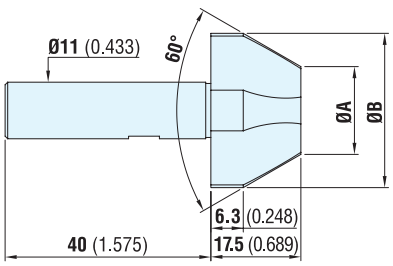
Reduced edge driving pins with added hard metal for driving shafts from ø 20 to ø 100 lowered to permit the wheel to get out on face driver side

Artiglio in MD riportato per trainare alberi da ø 20 a ø 100 ribassato per permettere l'uscita mola da lato trascinatore



Fixed center point with slots for centers or holes from ø 19 to ø 35

Punta fissa centrale a capruggine per fori o centri da ø 19 a ø 35



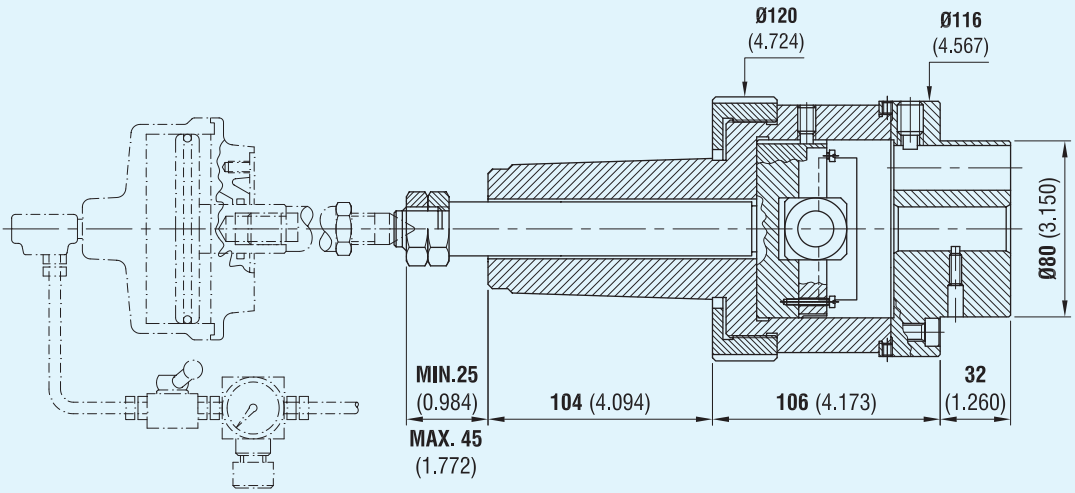
Code Codice	*Dimensions* Dimensioni		*For centers or holes* Per centri o fori	
	Ø A	*Ø B*	*from /* dalØ	*to /* al Ø
179200114	17 (0.669)	30 (1.181)	19 (0.748)	29 (1.142)
179200116	23 (0.906)	36 (1.417)	25 (0.984)	35 (1.378)

FACE DRIVERS Ø 45/150 FOR GRINDING MACHINES WITH ROTATING HEAD SPINDLE, OPERATED BY HYDRAULIC OR PNEUMATIC CYLINDER.

TRASCINATORI FRONTALI Ø 45/150 PER RETTIFICATRICI AVENTI ALBERO TESTA ROTANTE, AZIONATI DA CILINDRO PNEUMATICO O IDRAULICO.

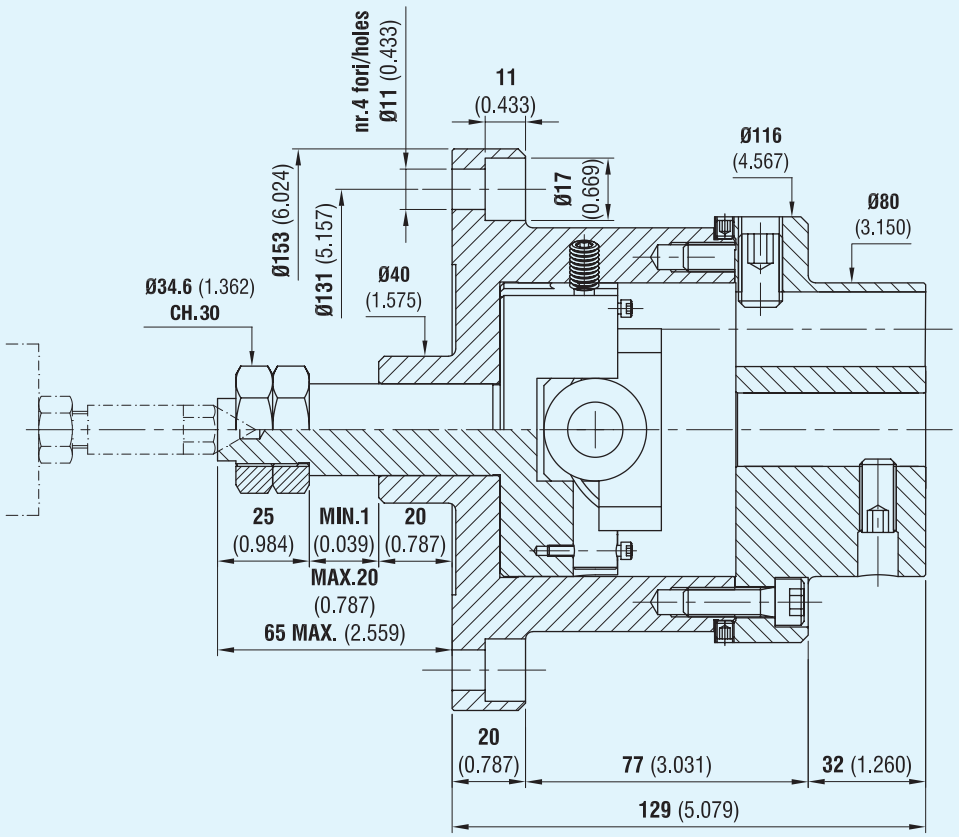
Version without driving pins and center point **Versione senza artigli e senza punta centrale**

Code - Codice	*Cono Morse*	*Morse Taper*
070921092 A	C.M.5	MT5
070922092 A	C.M.6	MT6



Version without driving pins and center point **Versione senza artigli e senza punta centrale**

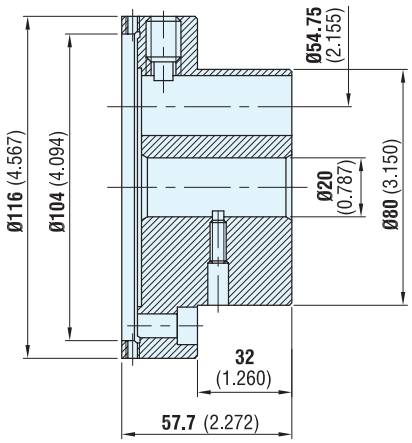
Code - Codice
070921096 A



Driving pins and center point face plate for face driver ø 45/150

Code - Codice
072921205

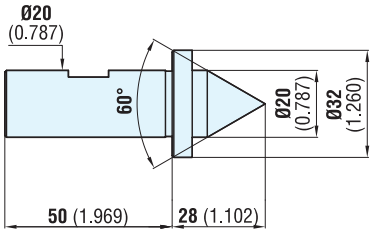
Testina porta artigli e punta centrale per trascinatore ø 45/150



Fixed center point for centers from ø 3 to ø 18

Code - Codice
072920104

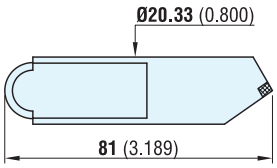
Punta fissa centrale per centri da ø 3 a ø 18



Driving pins with added hard metal for driving shafts from ø 45 to ø 150

Code - Codice
080920005

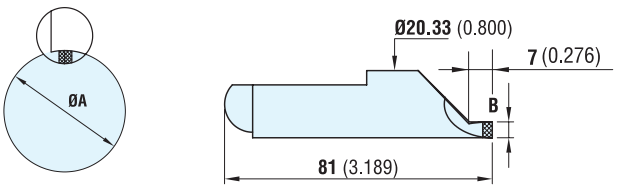
Artigli in MD riportato per trainare alberi da ø 45 a ø 150



Reduced edge driving pins with added hard metal for driving shafts from ø 45 to ø 150 lowered to permit the wheel to get out on face driver side

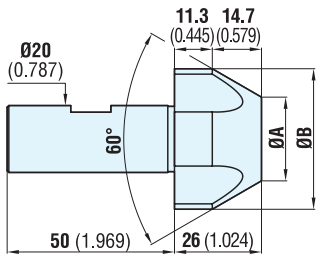
Code - Codice	*Ø A*	*B*
091920344	44 (1.732)	4.8 (0.189)
091920350	50 (1.969)	7.8 (0.307)
091920355	55 (2.165)	10.3 (0.406)
091920360	60 (2.362)	12.8 (0.504)
091920365	65 (2.559)	15.3 (0.602)

Artiglio in MD riportato per trainare alberi da ø 45 a ø 150 ribassato per permettere l' uscita mola da lato trascinatore



Fixed center point with slots for centers or holes from ø 18 to ø 71

Punta fissa centrale a capruggine per fori o centri da ø 18 a ø 71



Code Codice	*Dimensions* Dimensioni		*For centers or holes* Per centri o fori	
	Ø A	*Ø B*	*from* / dal *Ø*	*to* / al *Ø*
171713031	15 (0.591)	32 (1.260)	18 (0.709)	31 (1.220)
171713032	25 (0.984)	42 (1.654)	28 (1.102)	41 (1.614)
171713033	35 (1.378)	52 (2.047)	38 (1.496)	51 (2.008)
171713034	45 (1.772)	62 (2.441)	48 (1.890)	61 (2.402)
171713035	55 (2.165)	72 (2.835)	58 (2.283)	71 (2.795)

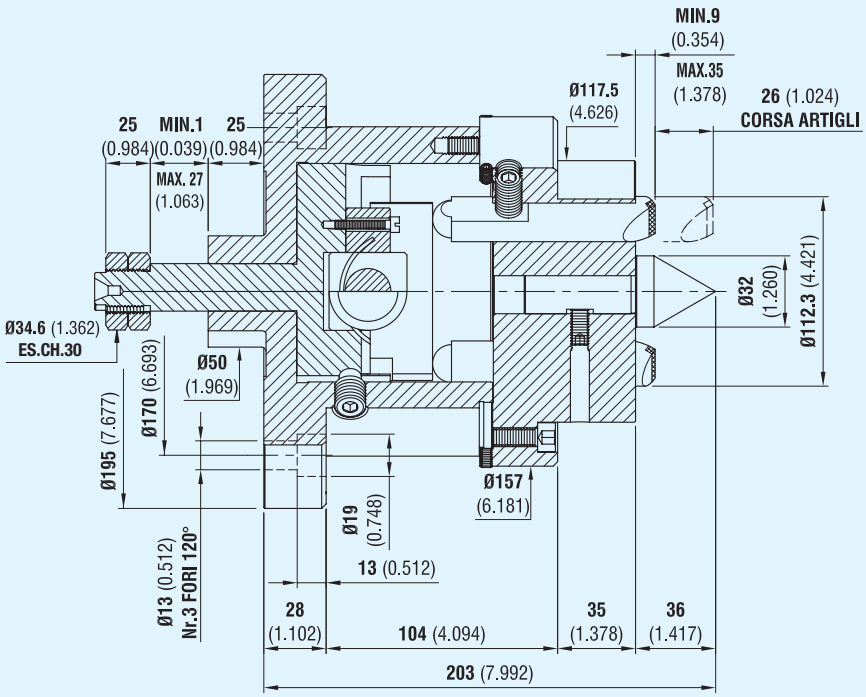
FACE DRIVERS Ø 100/300 AND Ø 180/400 FOR GRINDING MACHINES WITH ROTATING HEAD SPINDLE, OPERATED BY HYDRAULIC OR PNEUMATIC CYLINDER, WITH FLANGE FITTING AND INTERCHANGEABLE FIXED CENTER POINT

TRASCINATORI FRONTALI Ø 100/300 E Ø 180/400 PER RETTIFICATRICI AVENTI ALBERO TESTA ROTANTE, AZIONATI DA CILINDRO PNEUMATICO O IDRAULICO, CON ATTACCO A FLANGIA E PUNTA FISSA INTERCAMBIABILE

FACE DRIVERS Ø 100/300

TRASCINATORI FRONTALI Ø 100/300

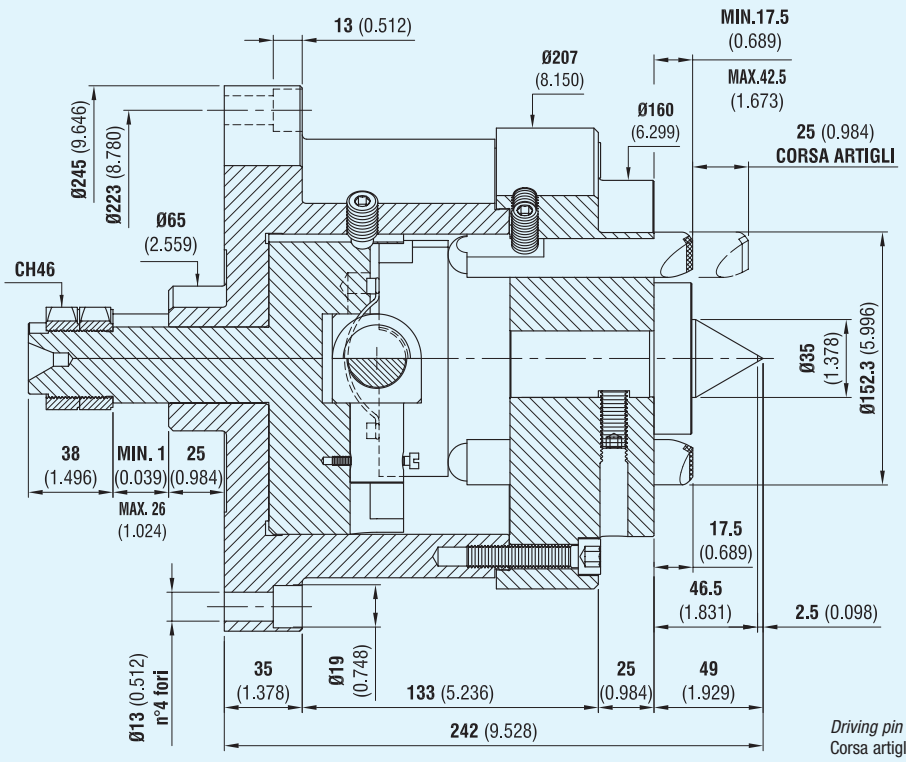
Code - Codice
070921099



FACE DRIVERS Ø 180/400

TRASCINATORI FRONTALI Ø 180/400

Code - Codice
070921100



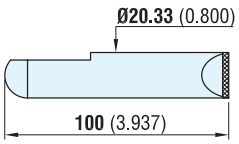
Driving pin stroke 25 (inch. 0.984)
Corsa artiglio 25

For face driver ø 100/300

Per trascinatore ø 100/300

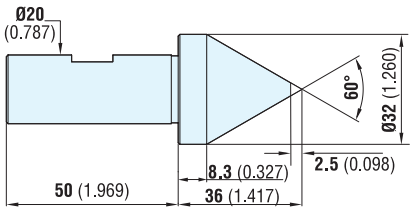
Driving pins with added hard metal for driving shafts from ø 100 to ø 300
Artigli in MD riportato per trainare alberi da ø 100 a ø 300

Code - Codice
080920400



Fixed center point for centers from ø 3 to ø 28
Punta fissa centrale per centri da ø 3 a ø 28

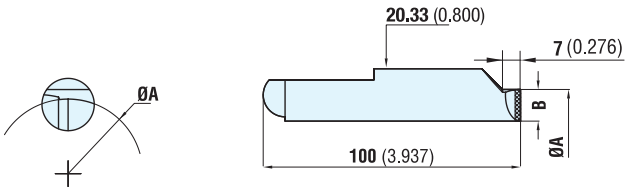
Code - Codice
072102765



Reduced edge driving pins with added hard metal for driving shafts from ø 100 to ø 300 lowered to permit the wheel to get out on face driver side

Artiglio in MD riportato per trainare alberi da ø 100 a ø 300 ribassato per permettere l' uscita mola da lato trascinatore

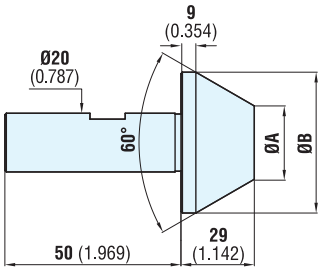
Code - Codice	*Ø A*	*B*
091920402	84 (3.307)	6.3 (0.248)
091920403	89 (3.504)	8.8 (0.346)
091920404	94 (3.701)	11.3 (0.445)
091920405	99 (3.898)	13.8 (0.543)



Fixed center point with slots for centers or holes from ø 28 to ø 100

Punta fissa centrale a capruggine per fori o centri da ø 28 a ø 100

Code Codice	*Dimensions* Dimensioni		*For centers or holes* Per centri o fori	
	Ø A	*Ø B*	dal / *from Ø*	al / *to Ø*
171714019	25 (0.984)	48 (1.890)	28 (1.102)	47 (1.850)
171714020	42 (1.654)	65 (2.559)	45 (1.772)	64 (2.520)
171714021	60 (2.362)	83 (3.268)	63 (2.480)	82 (3.228)
171714022	78 (3.071)	101 (3.976)	81 (3.189)	100 (3.937)



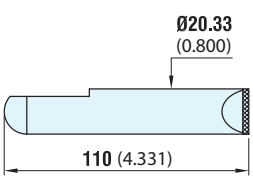
For face driver ø 180/400

Per trascinatore ø 180/400

Driving pins with added hard metal for driving shafts from ø 180 to ø 400. Center points with slots and reduced edge driving pins available on request

Code - Codice
080920401

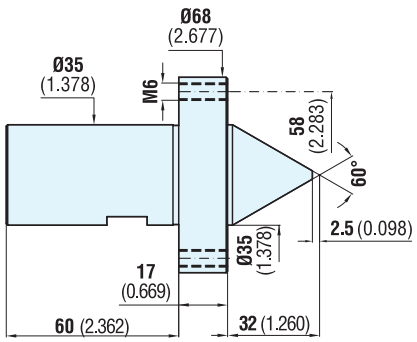
Artigli in MD riportato per trainare alberi da ø 180 a ø 400
Punte a capruggine e artigli ribassati solo su richiesta



Fixed center point for face driver 180/400

Punta fissa centrale per trascinatore 180/400

Code - Codice
072102763



BAG - LOAD CELL FOR CHECKING AXIAL THRUST ON MACHINE TOOLS

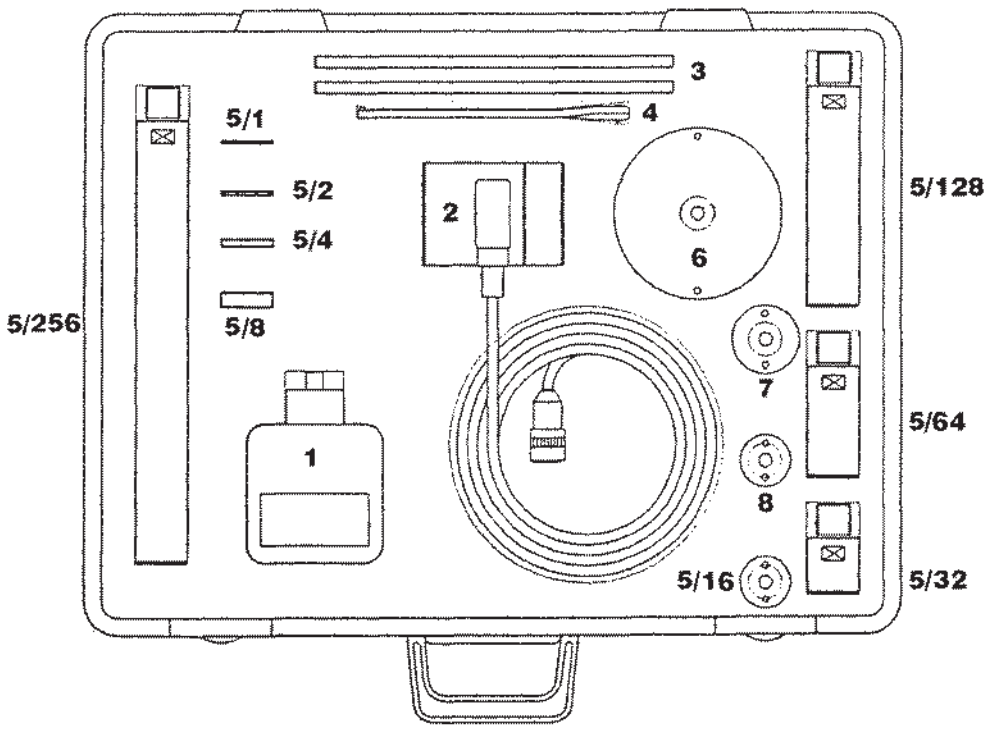
VALIGETTA CELLA DI CARICO PER IL CONTROLLO SPINTA ASSIALE SU MACCHINE UTENSILI

Contents of the bag **Contenuto della valigetta**

Code Codice
105090303

Q.ty / Q.tà	***Description*** / Descrizione	***Position***/Posizione
1	*Digital electronic Dynamometer* / Dinamometro elettronico digitale	1
1	*Load cell for digital dynamometer* / Cella di carico per dinamometro digitale	2
2	*Fork wrenches mm 27* / Chiavi aperte mm 27	3
1	*Torque wrench* / Chiave a compasso	4
1	*Bynary range of sleeves* / Serie binaria di distanziali 1.2.4.8.16.32.64.128. 256	5/1.2.....256
1	*Centered cap face driver side Ø 100* / Tappo centratore lato trascinatore Ø 100	6
1	*Centered cap face driver side Ø 40* / Tappo centratore lato trascinatore Ø 40	7
1	*Centered cap live center Ø 30* / Tappo centratore lato contropunta Ø 30	8
	And with instruction book / Con libretto di istruzioni	

DISPOSITION OF THE CONTENTS **DISPOSIZIONE CONTENUTO**



PUSHER AND HYDRAULIC CYLINDER FOR GRINDING MACHINES

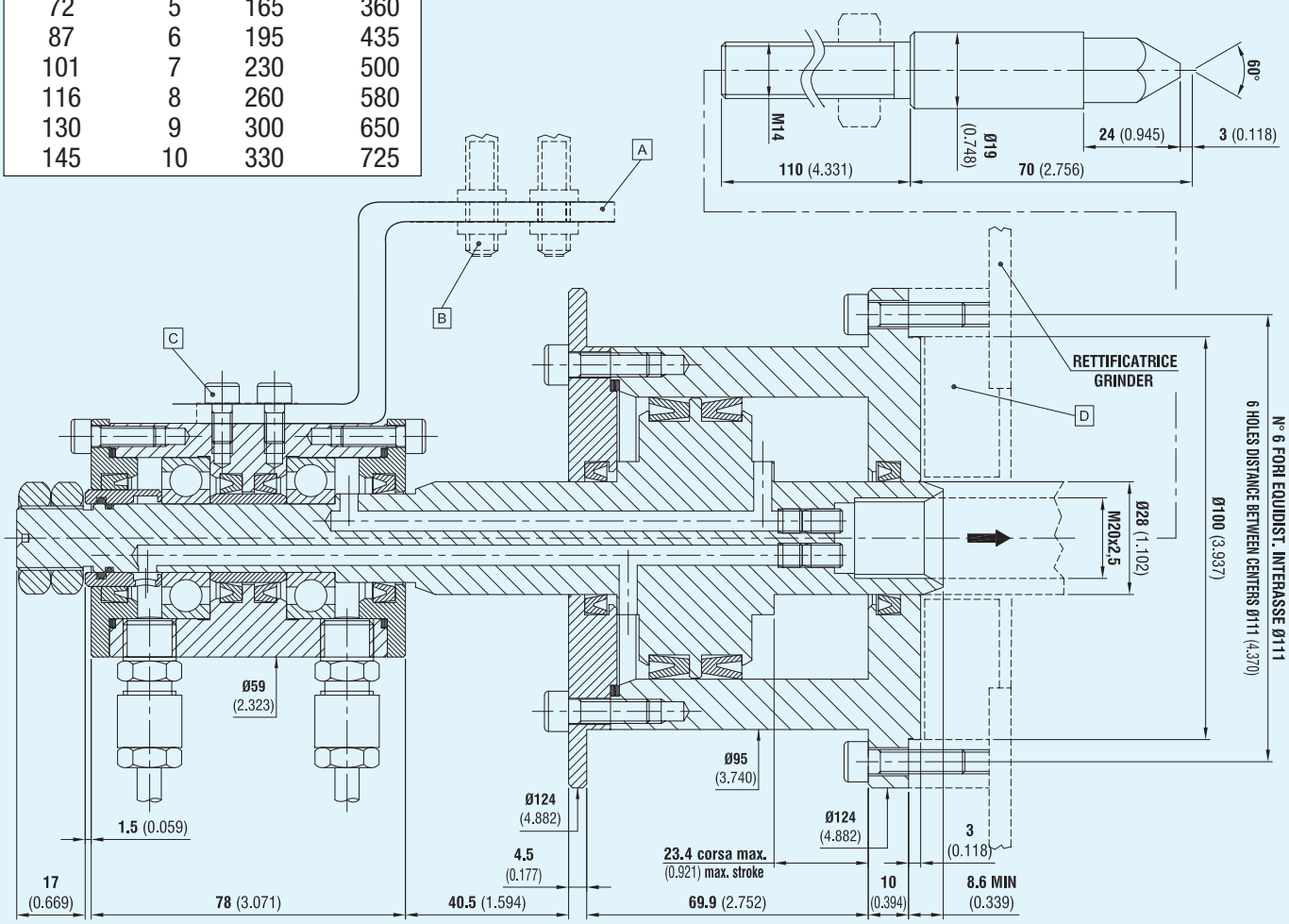
SPINTORE E CILINDRO IDRAULICO PER RETTIFICATRICI

	Pressure that can be used with our cylinder code 070920045 (area = cm² 32.3) Pressioni utilizzabili con nostro cilindro cod. 070920045		
p.s.i.	Bar	Kg.	Lbs
58	4	130	290
72	5	165	360
87	6	195	435
101	7	230	500
116	8	260	580
130	9	300	650
145	10	330	725

PUSHER
SPINTORE
CODE - CODICE 070920050

CYLINDER
CILINDRO
CODE - CODICE 070920045

BRACKET SUPPORT MICRO
STAFFA DI SUPPORTO MICRO
CODE - CODICE 070920051



PISTON CROSS SECTION AREA: 32,3 cm2 SEZIONE UTILE DEL PISTONE: 32,3 cm2
MAX PRESSURE ALLOWED: 40 Bar PRESSIONE MAX CONSENTITA: 40 Bar
MAX SPEED: 1500 r.p.m. VELOCITÁ MASSIMA: 1500 Giri/Min

PARTS NOT INCLUDED / PARTICOLARI NON COMPRESI:

A) ***Position proximity switches*** / Supporto micro
B) ***Proximity switches*** / Micro di prossimità
C) ***Screws*** / Viti T.C.C.E. M5x10-UNI5931
D) ***Adaptor(to be adjusted to the grinding machines)*** / Flangia di raccordo (da adattare alla rettificatrice)

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